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LINGUISTIC FAMILIES OF CALIFORNIA

BY
ROLAND B. DIXON AND A. L. KROEBER

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FAMILIES OF NATIVE LANGUAGES IN CALIFORNIA

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HISTORICAL INTRODUCTION

Powell's classification and map of the linguistic families of America¹ allotted twenty-two families or parts of families to California. For a number of years this reckoning stood unaltered; for many years it was unchallenged even to its details. In 1905 one of the present authors showed the relationship of the Shastan dialects to Palaihnihan (Achomawi and Atsugewi),² and his combination, first under the name of Shasta-Achomawi and then of Shastan, came into general acceptance through its recognition by the Bureau of American Ethnology.³ This fixed the number of families in California at twenty-one.

A few years later the same writer suggested, on the basis of some preliminary but fairly considerable body of material, that Chimariko and Shasta were sprung from a single stock;⁴ and his colleague supported the view that Miwok and Costanoan must probably be considered akin⁵—as, in fact, had been the custom before their separation by Powell. Neither of these consolidations, which would have reduced the families represented in the state to nineteen, was, however, advanced without reserve, and they failed of general acceptance.

Several other possible cases of kinship presented themselves to the writers at various times, as between Wintun and Maidu, Maidu and Yokuts, Chumash and Salinan, and even Yuman and Esselen, and several brief lists of similarities were compiled by them. Once or twice allusions to these possibilities found their way into print.⁶ But, on the whole, the resemblances seemed scant and best interpretable as due either to coincidence or borrowing.

By 1903 at least a slight body of information had been secured on the grammar of representative dialects of each of the twenty-two families then recognized in California, and the present writers published a brief monograph⁷ classifying these families into several types and subtypes on the basis of structure. They expressly emphasized that this classification was not genetic, and assumed that while the structural resemblances were undoubtedly actual, they must be inter-

¹ Ann. Rep. Bur. Am. Ethn., vii, 1891.

² Am. Anthr., n. s., vii, 213-217, 1905.

³ Bur. Am. Ethn., Bull. xxx, 1907, 1910.

⁴ Present series, v, 337, 1910.

⁵ *Ibid.*, ix, 259, 1910.

⁶ *Ibid.*, p. 261.

⁷ Am. Anthr., n. s., v, 1-26, 1903.

preted as due to secondary influences exerted on each other by languages of distinct origin. In the main, or at least at several important points, the non-genetic type classification then advanced coincides with the genetic classification presented in the present paper. That it is different in several cases is due to the scant knowledge then extant as to most of the languages, a paucity that necessitated the basing of comparisons on a small number of comparatively outward features of structure, such as the presence and absence of pronominal affixation and a plural in nouns. That the suggestions as to genetic relationship which this classification obviously bore were not adopted or even followed out by the authors was due to an essentially conservative attitude, a reflection of the views generally current for some twenty years after the publication of Powell's basic classification, views not yet wholly deprived of vitality, and certainly in the main justified by the sense of order and fixity which Powell's work introduced as against the hesitations and random irresponsibilities of previous less systematic attempts.

This conservative attitude was adhered to by the writers for a number of years—maintained, in fact, to a point that now seems to them to have been unnecessarily belated. As evidences of similarities between this and that language accumulated, they were indeed noted, but were consistently interpreted as instances of one unrelated language borrowing either material or machinery from another.⁸

Finally, it seemed desirable to bring together all the readily available data and determine the exact degree and nature of the similarities. About two hundred and twenty-five English words were selected on which material was most likely to be accessible in reasonably accurate and comparable form, and the known native equivalents in sixty-seven dialects of the twenty-one stocks were entered in columns. Comparisons were then instituted to determine all inter-stock similarities that seemed too close or too numerous to be ascribed to coincidence. The purpose of the study was threefold: first, to ascertain the nature and degree of borrowing between unrelated languages; second, to trace through these borrowings any former contacts or movements of language groups not now in contact; third, in the event of any relationship existing between languages then considered unrelated, to determine this fact.

Some similarities were soon apparent between nearly all the twenty-one stocks, and with the completion of the comparative vocabularies

⁸ Compare, for instance, A. L. Kroeber, *Anthropos*, VIII, 394ff., 1913.

the number of resemblances had become considerable. They seemed to show little, however. Families some distance apart on the map often had more stems in common than those in juxtaposition; if the remote group was regarded as once in contact with the one with which it shared most words, it must have been in contact also with others with which it shared but few words. Stems of the most diverse and scattering types of meaning showed similarities in distinct stocks: beyond onomatopoeic names of birds there was no one class of words that seemed more or less given than others to transference by loan. The results, in short, appeared completely meaningless.

Finally, in a mood rather of baffled impotence, an interpretation of the cases of most abundant resemblance as due to genetic relationship was applied. At once difficulties yielded, and arrangement emerged from the chaos.

The appended table 1 shows the first results. This table gives the number of stem resemblances common to every two of the twenty-one stocks, or to any dialects of every two of the twenty-one. It is evident that the highest numbers occurred in two groups, both of which are marked in the table by enclosing frames or boxes. One group contained the interrelations of Karok, Shasta, Chimariko, Yana, and Pomo; the other of Wintun, Maidu, Miwok, Costanoan, and Yokuts. Every instance of two stocks sharing twenty or more words was found to be included in these two groups, as were the majority of instances of two stocks sharing ten or more stems.

In other instances the number of words common to two stocks was absolutely small, but distinctly higher than the number shared by either with any other stock. Thus, apparently common to Chumash and Salinan, 12; to Chumash and any other language, 8; to Salinan and any other language, 6. Again, Yurok and Wiyot, as per the table, 4; Yurok and any other, 0 to 1; Wiyot and any other, 0 to 3. In both these instances the hint was reinforced by the fact of unquestioned structural similarity; and in the latter of the two, at least, a renewed search prompted by the growing suspicion quickly revealed an additional group of shared stems that had either not entered into the comparative vocabularies or whose resemblance had been overlooked.

An arrangement of the highest numbers of table 1 in order, as in table 2, also proved significant. The first sixteen pairs comprised eight belonging wholly to one of the groups (A) marked off in table 1; five belonging wholly to the other group (B); one (X) consisting of

TABLE I

	Athabascan	Yurok	Wiyot	Lutuami	Karok	Shasta	Chimariko	Yana	Pomo	Yuki	Washo	Wintun	Maidu	Miwok	Costanoan	Yokuts	Esselen	Salinan	Chumash	Shoshonean	Yuman	Aggregate	Stems represented
Athabascan	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	2	1
Yurok	0	-	4	1	1	0	1	0	1	1	0	1	0	0	0	0	0	0	1	1	1	13	8
Wiyot	0	4	-	1	3	1	2	2	3	0	1	1	1	2	2	1	1	0	1	1	1	28	9
Lutuami	0	1	1	-	1	11	4	2	6	4	0	4	7	2	2	6	1	0	2	0	0	54	21
Karok	0	1	3	1	-	9	9	4	6	2	3	2	2	2	2	2	3	1	5	0	4	61	13
Shasta	0	0	1	11	9	-	19	13	21	5	2	12	8	5	5	9	4	5	5	0	7	141	49
Chimariko	0	1	2	4	9	19	-	9	13	6	2	8	4	2	5	4	7	2	5	1	6	109	30
Yana	0	0	2	2	4	13	9	-	15	2	3	7	3	4	7	7	6	2	3	3	5	97	27
Pomo	1	1	3	6	6	21	13	15	-	14	2	17	8	11	7	5	8	1	2	5	5	151	57
Yuki	0	1	0	4	2	5	6	2	14	-	4	14	12	12	9	8	4	0	2	3	3	105	34
Washo	0	0	1	0	3	2	2	3	2	4	-	3	4	3	2	3	2	1	4	3	3	45	8
Wintun	0	1	1	4	2	12	8	7	17	14	3	-	23	27	10	17	5	2	5	2	4	164	62
Maidu	0	0	1	7	2	8	4	3	8	12	4	23	-	18	6	24	3	3	4	4	2	136	58
Miwok	0	0	2	2	2	5	2	4	11	12	3	27	18	-	27	18	5	6	5	6	3	158	64
Costanoan	0	0	2	2	2	5	5	7	7	9	2	10	6	27	-	19	8	4	5	5	2	127	43
Yokuts	0	0	1	6	2	9	4	7	5	8	3	17	24	18	19	-	4	2	8	9	2	148	57
Esselen	0	1	1	1	3	4	7	6	8	4	2	5	3	5	8	4	-	4	8	1	4	78	16
Salinan	0	0	0	0	1	5	2	2	1	0	1	2	3	6	4	2	4	-	12	3	3	51	19
Chumash	0	1	1	2	5	5	5	3	2	2	4	5	4	5	5	8	8	12	-	4	6	87	23
Shoshonean	1	1	1	0	0	0	1	3	5	3	3	2	4	6	5	9	1	3	4	-	5	57	24
Yuman	0	1	1	0	4	7	6	5	5	3	3	4	2	3	2	2	4	3	6	5	-	66	15
Aggregate	2	13	28	54	61	141	109	97	151	105	45	164	136	158	127	148	78	51	87	57	66	-	-

an A language and a B language in territorial contact; and two (Y) consisting of a language—Yuki, included neither in group A nor in group B—with respectively an A and a B language, between which it lies wedged geographically.

Again, Shasta and Chimariko had previously seemed related; but Shasta and Pomo presented more apparently common stems (21) than Shasta and Chimariko. So with Miwok and Costanoan: their similarities (27 in number), were equalled by those of Wintun and Miwok, and nearly equalled by those of Maidu and Yokuts (24) and Maidu and Wintun (23).

TABLE 2

<i>Order</i>	<i>Families</i>	<i>Resemblances</i>	<i>Group</i>
1	Miwok and Costanoan	27	A
2	Miwok and Wintun	27	A
3	Maidu and Yokuts	24	A
4	Maidu and Wintun	23	A
5	Shasta and Pomo	21	B
6	Shasta and Chimariko	19	B
7	Yokuts and Costanoan	19	A
8	Yokuts and Miwok	18	A
9	Maidu and Miwok	18	A
10	Yokuts and Wintun	17	A
11	Wintun and Pomo	17	X
12	Yana and Pomo	15	B
13	Wintun and Yuki	14	Y
14	Pomo and Yuki	14	Y
15	Chimariko and Pomo	13	B
16	Shasta and Yana	13	B

In short, only two attitudes seemed consistent. One was the old one of regarding each of the twenty-one stocks as totally unrelated; the other, to unite some of them as per the groups outlined.

In one respect the figures in tables 1 and 2 were quickly found unfavorably misleading. They might or might not be considered as including radical words due to a common origin: they certainly included words not due to such common origin but derived by loan. This element must obscure the incisiveness of the conclusions derivable from table 1. Further, the comparisons used being avowedly superficial, that is, not based on analysis, a certain number of false coincidences were bound to have crept in. For instance, the writers never supposed that the nine stems apparently common to Yokuts and Shoshonean indicated any degree of genetic unity. Several of the nine were obvious cases of borrowing; the remainder were so few that they

could scarcely be regarded as due to anything but accidental outward resemblances such as are bound to arise on the probability of chance. Now Yokuts, in the table, is credited with twenty-four stems shared with Maidu, with which it is thrown into a new family, and nine with Shoshonean, to which it is unrelated; a proportion which certainly seems unconvincing. But on elimination of the nine Shoshonean cases as not indicative of kinship and subtraction of an equal number from the Maidu-Yokuts total of twenty-four as probably also due to loan or coincidence, the proportion becomes 15 to 0; which is distinctly more positive, particularly in view of the comparative paucity of the material examined and the necessarily somewhat mechanical nature of the comparisons instituted on a first survey. Actually, in this case, the proportion would be stronger than 15 to 0, because Shoshonean is in geographical contact with Yokuts and Maidu is not, so that the probabilities of borrowing would be less in the latter case and the figure properly subtractable from the gross twenty-four would presumably be less than nine.

Another factor tended to obscure the first results. Table 1 deals only with stocks as units. Actually many of them were represented by data from several dialects or languages. To have included all these dialects in the table would have been exceedingly laborious and rendered the table rather unwieldy as a basis for reference. As drawn up, a stem common to only two dialects of different stocks was, therefore, entered exactly like a stem common to all the dialects of the two stocks: each counted as a case. For example, when the Tübatulabal dialect of Shoshonean, which is spoken in contact with Yokuts, has obviously borrowed the Yokuts word for "elk," the same weight attached to this instance, in the table, as to the fact that the identical stem for "two" runs through all dialects of Yokuts and of Maidu. Now the comparatively high number of Wintun-Pomo (A-B), Yuki-Wintun (Y-A), and Yuki-Pomo (Y-B) resemblances, which alone break the uniformity of table 2, is clearly due in considerable measure to this source of error of the tabulations. The Wintun-Pomo similarities were largely between dialects of these stocks, not between the stocks as wholes; and about half of the Yuki-Wintun and Yuki-Pomo cases held only for a small detached offshoot of Yuki, the Wappo, which is flanked on the map by Wintun on one side and Pomo on the other.

These considerations, accordingly, strengthened the authors in the conviction that the soundness of their inferences was greater than a merely cursory inspection of their results, as summarized in table 1,

would indicate; and they proceeded to announce their findings, at first in mere abstract,⁹ and soon after with some slight indication of the nature of their evidence.¹⁰

It was necessary to find names for the new groups or families. To extend the designation of one member of each group to the entire group would have been as misleading, in the end, as it would have been to name the tongues of Europe "Sanskritan." Binary designations of the type of Indo-Germanic, Ural-Altaic, and Uto-Aztekan were likely to prove unrepresentative, and certain to be clumsy. There seemed no recourse, accordingly, but to new and therefore arbitrary designations of the types of "Semitic"; and genealogical as well as national appellations being wanting in the native Californian field, and none of a geographical character applicable, the family names proposed were based on forms of the numeral "two" in the families of speech involved.

The result, then, of the investigations up to this point was the setting up of four larger families:

Penutian, consisting of the Wintun, Maidu, Yokuts, Miwok, and Costanoan families as previously recognized.

Hokan, including Karok, Chimariko, Shastan, Pomo, Yana, and, by subsequent addition, Esselen and Yuman.

Iskoman, namely, Chumash and Salinan.

Ritwan, or Yurok and Wiyot.

One thing and another delayed the marshaling in print of the evidence on which this new classification rested. Meanwhile, two of the new "families" were themselves merged in others; for the validity of a third, sufficient proof has been forthcoming from another source; until, now, the authors' task has shrunk substantially to an examination of their material from the five stocks named Penutian. The major part of this paper deals with this examination. The introduction, which herewith concludes, has been preposed to make clear the bearings of the Penutian findings to the work done in the past. Incidentally, the historical nature of this review may serve to establish that the authors proceeded not impetuously, but rather reluctantly, and step by step. In fact, as they look back now upon their participation in the problem of the reduction of the multifarious Californian languages to a smaller number of original units, they are impressed by their almost undue conservatism. They seem to themselves to have been timid in approaching the possibility of relationship at all, and slow in uncovering the most patent cases even after they held the clue.

⁹ Science, n. s., xxxvii, 225, 1913.

¹⁰ Am. Anthr., n. s., xv, 647-655, 1913.

THE PENUTIAN FAMILY

COGNATE STEMS

The list that follows gives one hundred and seventy-five Penutian stem resemblances that were found among the native equivalents of the two hundred and twenty-five English words with which this study was commenced. The material is arranged in the order which has become usual in briefer American vocabularies. A number of sets of cognates have been taken from their numbered place in this list and put at the end to allow of their being printed in columnar form, with a view to bringing out parallelisms that otherwise might fail to impress without detailed analysis and discussion. Thus, number 6 does not come between 5 and 7 in the main list, but heads the following series.

Orthography. This probably speaks for itself to any Americanist. It may be said, however, that *c* is or resembles English *sh*; *tc* is English *ch*; *ñ* is the palatal nasal; *x* is a palatal fricative; *t*, *q̣* are palatalized; ' is the glottal stop; *k'*, *t'*, *t'*, *p'*, *tc'* are glottalized stops and affricatives; *l* is voiceless *l*; *γ*, a sonant fricative palatal; *ö*, *ü* are unrounded mixed vowels.

Sources:

Maidu: manuscript records by R. B. Dixon.

Yokuts: manuscript records by A. L. Kroeber.

Wintun: chiefly manuscript records by R. B. Dixon; also by H. B. Wilson and A. L. Kroeber; also, published vocabularies of S. A. Barrett¹¹ and J. W. Powell.¹²

Miwok: primarily, the vocabularies published by S. A. Barrett,¹³ supplemented by manuscript material by R. B. Dixon, A. M. Tozzer, and A. L. Kroeber.

Costanoan: various data, as assembled in a publication by A. L. Kroeber,¹⁴ subsequently increased by the San Juan Bautista material of Arroyo de la Cuesta as classified by J. Alden Mason.¹⁵

Abbreviations:

W	Wintun
N	Northern
c	Central
SE	Southeastern
SW	Southwestern
s	Southeastern and Southwestern

¹¹ Present series, VI, 81-87, 1908.

¹² In Stephen Powers, "Tribes of California," Contrib. to N. A. Ethn. III, 1877.

¹³ Present series, VI, 69-80, 362-367, 1908.

¹⁴ *Ibid.*, IX, 243-248, 1910.

¹⁵ *Ibid.*, XI, 399-472, 1916.

Abbreviations:

Md	Maidu
NW	Northwestern
NE	Northeastern
S	Southern (Nishinam)
N	Northwestern and Northeastern
Y	Yokuts
N	Northern
V	Valley
K	Kings River
T	Tule-Kaweah
P	Poso Creek
B	Buena Vista
Mw	Miwok
S	Southern Sierra
C	Central Sierra
N	Northern Sierra
P	Plains
CO	Coast
L	Lake
C	Costanoan
F	San Francisco
J	San Jose
CL	Santa Clara
CR	Santa Cruz
B	San Juan Bautista (Mutsun)
M	Monterey (Rumsen)

Basic List

1. *Person*. W c win (*man*), s wi-ta (*man*); Md N maidu, s maidü-k; Y K mayi, T mai; Mw S, c miwu, N miwu-k, P miu-ko, CO ula-mitea.

2. *Man* (1). Y T ʔaati (*person*), P ʔaat (*person*), B toxy; Mw P cawe, CO taiyi-c, L tai; C J, B ʔare-s, CL tare-c, CR teare-s.

3. *Man* (2). Y N, v nono; Mw S, C, N naña. Cf. adjacent Mono (Shoshonean) nana.

4. *Boy, Youth* (1). W c k'aina, s seri-ta, SW teurai; Mw P sali-nai, CO hena-s, L hena-putu; C F ceni-s-muk, CR ala-cu, M cini-emk.

5. *Boy, Youth* (2). Y N, v, K, T notco, N nonkoi, P kohutem; C J koteo, B koteinsix.

7. *Woman, Girl* (2). Mw (*woman*) s oha, c, N osa, P ûcûû; C (*girl*) J atsy-a-kie, B atsia-gnis, M atsy-amk.

8. *Girl*. Md NE konoi-be, s konai; Y N gaina, v gaita, T guyodum, P getep-al, gadap-cul, B guyoyam; Mw L koya, CO kola-putu; C F kaʔa.

9. *Baby*. W N ila, c elet, SE ilak, sw ilai; Md NW tsilak'a, NE konoko; Mw S esellu-tki; C F oklueku-c.

10. *Old man*. W N kiemi-la, c kias, sw teiak (metathesis); Md NW kano, s oskon; Mw s humele-tki; C F hunta-x (*old*), J, CL hunta-te; perhaps also, by metathesis, Y v moxelo, K moxolo, T moxodo.

11. *Head* (1). W sw dul; Md s teul; Y K dool, T toʔ; Mw P tolo.

11a. *Head* (2). W SE ana; Md N, s ono (S: *hair*); Y N oteo, v oʔo, K, T, B oʔo (*hair*); Mw C, N hana; C J, CL, B uri (*hair*), CR uri, M uʔ.

12. *Head* (3). Mw co molu; C J moñil, B moxel; Y (*forehead*) N piteiu, v piñiu, K tiliu, T tüdu, P peleu.

13. *Hair, Forehead*. W (*hair*) N tomoi, C tumoi; C (*forehead*) J tima-x, CL tima-te, CR, B tima; and possibly Md sün.

15. *Ear* (2). W N, C, S mat; Md N, S bono.

16. *Eye* (1). W N tum, C Lui; Md N hini, S hin; Mw S huntu, C suntu, N sutu, CO, L sût; C J hiny, CL, B, M xin, CR hin.

17. *Eye* (2). W SE sas, SW sa; Y N, v, T, K caca, P ceca, B sasa-'l.

18. *Nose* (1). W N, C sono, S Linik; Md NW sumo; Y N sinik, N, v, K ñinik, T ñüñuk, P ñeñik, B ñinak.

19. *Nose* (2). Md NE hiku-m; Mw N huku, P, CO, L huk; C F, CL, CR, B us, J hus, M wus.

20. *Mouth*. W N, C, S kol, SE kol; Md NW kombo, NE simi, S sim; Y N, v, K, T cama, P cema, B sa'm.

21. *Teeth*. W N, C, S si, ci; Md NW tsawa, NE, S tsiki; Y N, K teli, v te'yi, T ñaïi; Mw S, C, N kutu, P, CO, L kût; C F, J, CR, B, M sit, CL sût-em.

22. *Tongue* (1). W N, C, S tahal; Md N eni, S alili (assimilated); Y N talxats, v talxañ, K talxiñ, T tadxat, P talapi-s, B a'lada-s, K madañ.

23. *Tongue* (2). Mw S, CO lemtep, C, P nepit (metathesis), N nepitu, L letip; C F lasek, J, B, lase, CL lasex-em, CR lasa.

24. *Beard*. W N -teeki, C -tseket, S sep-sep; Md N simpani, S masau (by metathesis?); Y N dabuts, N, v damuñ, T damoñ, K djamoe, P djamec, B damue.

25. *Chin*. W S kaba; Md NW yappa, NE tsawa-m-bömin; Y N ugue-ul, awate-il, v, P awae, K awadji, awaie-il, T awaci, B yuku-l; C M awie.

27. *Shoulder*. W N salu-s, C, SE sala; Md N, S dadaka; Y N gapeal, v gapsai, ñapal, K ñatal, T ñapad, P gepeil, B gapsai.

28. *Hand* (1). Mw S, C, N tissu, S ukuc, N ukusu, P eku, CO, L uku; C F, J, CL, CR, B (*arm*) isu, M (*arm*) is; and possibly W S, C, N sem, C, SW (*arm*) sala.

29. *Hand* (2). Y N bonoe, v bunduk, K poñon, T puñon, B poton; Mw (*arm*) S patean, C woñotu; C M puts.

30. *Arm*. Mw S, P tawa, N tumalu, P tumal, CO tauli, tali-k, L tauli-k; C CL talme-s (metathesis).

32. *Breasts*. W C, SW imit, SE imik; Md NW nuni (assimilated); Y N, P minite, v, T, B meniñ, K mintei-x; Mw S, C, N musu, P, CO, L mu.

33. *Belly*. W SW bus; Y N balik, K olók', lak'i-n; Mw L puluk; C M pitin.

34. *Knee* (1). W N puiyak, SW pomok; Md N pokosi (metathesis), S podok; Y N, K opuk, K upuc, N bucon, v kuyut, T kuyoc-ud, P kuyoc-il, B kuyos-u'l.

35. *Knee* (2). W C, SW anak; Mw S hoñoi, C, N hoñoyu, P honoi.

36. *Knee* (3). Mw L tokollo; C M dol-s.

38. *Foot* (2). W C kole; Mw N, P kolo, CO koyo, ko, L kollo; C F kolo, CL, CR (*leg*) koro, B M koro.

39. *Heart* (1). Md NE honi, S hon; Y N, v hon-hon, K hono-hon, T hoñ-hoñ, P hoñheñ.

40. *Heart* (2). W N pudu-s, puris, S puru; C F, CR mini, J minyi-x, CL minite.

41. *Bone*. Y N, K te'ei, v, T, P te'i, B ts'i-x; C J tayi, CL taxi-m, CR teaye, B ñati, M teate; and perhaps Mw S kuteute, C, N kuteuteu, CO mutci.

43. *Blood* (2). W N dedeki (assimilated), C, S sak; Md N, S sede.

45. *Fat*. W N hom, SE hum; Md NE hōti, S hōt; Y N, v, K, T hexa, P hiya.

46. *Skin*. Y v daplan, K ñapia, P p'alai, B gapae, K ñotop, v, K teului, T teudui; Md (by metathesis) NW potani, NE posala, S potom.

47. *Faces* (1). W N teeni-s, C teeni, SW teni; Mw S kunat, C kunatu-s, N kunatu, P kūna.

48. *Faeces* (2). Md NE piti; Y N, K pidik, v, T bidik.
49. *Urine*. W N teunu-s; Md NE tsumi; Y N, v, T teuyon, v teulon, K ðuyun.
50. *Sinew*. Md NE paka; Y N, v, K pikil, T piked.
51. *Horn*. W C k'ili, SW teili; Y v icel, T ücad, P e'eil, B ücul.
52. *Tail* (1). W N eutun; Y N kut, v gut-'oe, K kot, T gut, P got.
53. *Tail* (2). Md N buku, s buk; Y B tapak.
54. *Navel*. W N nak; Md NW naka.
55. *Chief*. W C, s sektu; Md s huk; Mw P teeka.
56. *Shaman, Ceremonial Initiate*. W C hiyom, s yom-ta; Md N yomi; Mw C, N alini, P umise, L yomta; and possibly Y v, K anðu, T añðu, P eñteu.
57. *House* (1). W N, SW k'ewel, C k'el, s k'ewe; Md N höbo, s höpöu; C F riwa, J ruwai, CL "gruwa-m," CR ruwa, B ruka, M ruk.
58. *House* (2). Y v, K, P ði, v tsi, T, B ðe; Mw S, C uteu, C, N, P, CO kotea.
60. *Arrow* (1). W N not, s noko; Md N noko.
61. *Arrow* (2). Y N, v, K, T t'uyo-e; C CL tawi-s-em, CR teemo, B ðemo-x, tiyo-s, M tep-s.
62. *Knife*. Md NW tsumi, NE tsami; Mw S cope, L tsitsa (assimilated); C F tipa, CR teipa, M ðip.
63. *Boat* (1). Y N, v, K, T, P owon, B u'win; Mw S wote; C F wali, CL walin.
- 63a. *Boat* (2). W S nu; Md N nö; Mw L nu (borrowed from W S).
64. *Boat* (3). Md NE yaka, s wakai; Mw N saku, P saga, CO caka.
65. *Pipe* (1). W SE dopo; SE topor; Mw P topo-kela; C J torepa, CL "trepa-m," CR torexo.
66. *Pipe* (2). W SW bomit; Md N pani (*tobacco*), s pan; Y v baum, N baum (*tobacco*), P bamuñ, B bomots; Mw S, C, N paumma.
67. *Pestle* (1). W N satak, C cotok, SE taki, SW t'usa; Md NW suni.
68. *Pestle* (2). Md NE bayi, s bai; Y v polwoi, K palui, T padui; Mw P hopa, CO pa, paya.
69. *Sun* (1). W N sas, SE con, SW sun; Y P hieta; Mw C, N hiema, P, CO, L hi; C F, CL, CR, B iemen, J hiemen.
70. *Sun* (2). Md N poko, s oko; Y N, v, op, K upu-e, T opodo, T upi-e (*moon*), P opo-e (*moon*).
71. *Moon*. Mw S, C, N, P kome, L kume-nawa; C F kolma, J, CL korme.
73. *Night* (1). Mw S kawulu-to, C, N kawulu, P, CO, L kawul.
74. *Night* (2). W N ken-wina, C leni, SW sinol; Y N tuyon, v, T, P, B toyon, K toyon.
75. *Cloud*. W N, C k'a, s k'ir, k'ira; Y v k'ilei, K k'elei, T k'üdaí, P k'eli, B p'iya-p'iya; Mw CO ilau, ya-kal.
76. *Lightning*. W N waluka; Md NW -winaka, NE wipili (metathesis), s wispil; Y N walma, v walam-wiya, K walam-wila'a, T wadam-wida; C F wilka-warap, CL wilka, CR wilep.
78. *Snow*. W N yolo, C yola, s yol; Md N, s ko; Mw S, C, N, P kela; L tana; C J, CL wakan, CR wakani.
79. *Fire*. Md N, s sa; Y N, v ocit, K ucit, T, B ucit, P ocot; Mw S, C, N wuke, P wüke, CO wüki, L wiki; C CL, M coto, B coton.
81. *Ash*. W N bukul, C puk, s put; Md NW pöpö (assimilated), NE pupu; Y, T, P hapae.
82. *Coal*. W N, C kali, SE wali; Y N, v calu, K cal'an, T eapan, B soolin.
83. *Water* (1). Y N, v, K ilik, T idik, P elik, B ilak; Mw S, C, N kiku, P, CO, L kik (probably by assimilation); C, all dialects, si.
84. *Water* (2). W N C, s mem; Md N momi, s mom.
86. *Mountain* (1). W C teol, s tol; Y N, K dulul.

87. *Mountain* (2). Md N yamani; Y v lomi't, t domit, p lomat, b lumit; Mw s, c leme.

88. *Stone*. W N, c son, se sos, todui, tului, sw kodoi; Y N, v eilel, p xelul, b xalu'l.

89. *Salt*. W N, c, s wel, Md N, s ba.

90. *Wood*. W N teus, c teok', se tok', sw tok; Md N tsa; Y N, v hit'ec, k hit'ic, t hüt'ac, p etis; Mw s huhu, c, n susu (assimilated).

91. *Grass, Brush*. Y v, k yawil, t yawud; C F yama, CR wai.

92. *Sugar Pine*. W N, c sumu; Md N, s sumu; Y N, v teonoxi-c, t teñoñxi-c.

93. *Yellow Pine*. Md N, s imi-m-tsa; Y v inil, t idñit; and possibly W N kulem.

94. *Digger Pine*. W N teati, c te'oko, se te'usak, sw t'uwa; Md NW, s toni-m-tsa; Y N, k ton, t toña-c.

95. *Buckeye*. W c pasa; Md N, s polo-m-tsa; Y N, v dopin, k dupun, t dopoñ.

96. *Manzanita* (1). W N pai, c paka; Md NW üpü, NE epö; Y N apteu, v, t aptu, k upü, p opto.

97. *Manzanita* (2). W SE eya, sw eye; Mw s, c, n, p eye, CO, L eyi.

98. *Tule* (1).^a W SE sa-kulul, guye; Y N k'oyi-c, v goṭ, k k'oyu-c, t goṭ, p gatswei, kololi-s; Mw L kol.

99. *Tule* (2).^a W c Lap, sw Lop, Laka; Mw co loko, cappa.

100. *Tule* (3).^a W N pat-pat, SE p'ocak; Md NW pok-poko; Y N, v bumuk, v poton, k patak.

101. *Dog*. W N cuku, c eukut; Md N sü, s suku; Y N teexa, k teeceec, t tcejej, p teicue, b tseses; Mw s, c, n teuku, p teuteu; C CL teuteu, CR hi-teas.

102. *Coyote*. W sw ul (*wolf*), Md NW oleli, NE helieni (*wolf*), s ole, hosai, Y B hulapinsa-s; Mw s aheli, c aseli, n oleteu, p oleti, co oye, L ole.

103. *Fox*. W N, c hau; Md N hawi, s hau; Y N, v, k, t au'dja, b gaudat.

105. *Grizzly Bear*. W N wima, c wemał; Md N pano.

107. *Deer*. W N, c, s nop; Md s döpe.

108. *Elk*. W sw lokoya, Y N, v, k, t coxgoi.

109. *Jackrabbit*. W N patkili-s, c patkili; Md NW, s palali, palal (*rabbit*—assimilated), NW, s boye; Y v eapal, dopol, t dopod, tukuyun, p tokeo-c, b te'abakiu; Mw s, c, n eplali, p epali, co aule.

110. *Bird*. W N teil-teil, c teilteit; Y N te'enpai, k denip, t deteip, p wiwitsi (assimilated), b we'tuts; Mw s, c teitcka (assimilated), n mitcema-ti, p teitcipu-k (assimilated); C B teiri-t-min.

111. *Buzzard*. W N, c, s hus; Md NW hōsi, NE mini-husi, s hōs; Y N hots, huṭawi, v hoṭ, koṭeya; Mw s huhu, c husu, N, p teuhu (metathesis), L hus.

112. *Crane* (1). W N kat; Md N waksi, s köu; Y N, v, k waxaṭ, t waxit.

113. *Crane* (2). W N toriha-s; C B ture-s.

114. *Turtle*. W c an, se anu-c, sw ano; Y N on; Mw s awan-ta, c, n awauna-ta, p awanna-i; C F auni-c-man, CL, CR, B auni-c-min, M xuno-s-xim.

115. *Rattlesnake* (1). W s tiwil; Md NW cola, s sola; Y v, k ṭeel, t ṭööd, p ṭiel, b ṭiwi-tiw; Mw L holo-mai.

116. *Rattlesnake* (2). W N Lak, c Letceeu; Mw s, c lawati.

117. *Frog*. W N watak-mit, c, s watak; Md NW awani, NE wakat (metathesis); Y N watak-saai; Mw s waku-na, c, n watak-sayi; C B wakaraṭ-min, M wakatse-m (metathesis).

118. *Fish* (1). Y N lopite, v lopit, k lupuṭ, t dopit, p lopaṭ, b lupit; Mw s lapisai, c, n lapisayu, p pu, co elewi, lota; C CR helai.

^a There are three common species of *Scirpus* and *Typha* generally called "tule" in California.

119. *Fish* (2). W N diket, c teit, s tir, til; C M kinir.
121. *Trout*. W N sulot, c colat, sw ciya-tir, mol; Md N paliki, s pala; Y N, v, k dalim, t dadim; Mw c lewim, co tolo, L hul.
122. *Fly*. W N xilit, lulit (assimilated), SE homota; Md NW amelulu, NE emelulu, s emululu (all assimilated); Y v monai, k monoyi, t p'anue-kai, p p'onits-kai, B p'anis-gai; C F momua, CL mumuri-x, CR mumura, B mumuri (all assimilated, evidently also onomatopoetic in form).
123. *Spider* (1). W N kerek; C B tiras-min.
124. *Spider* (2). Md NE makati, s boko; Y N, v, k medja, t mteca.
125. *Louse*. W N donus, c dono, SE peris, sw peri; Md NW di, NE pedesi, s pedes; Y N tihite, v, k tihit, t tehet, p tihet, B tahať; Mw s, c, N ketu, p ken, co, L ket; C B kaxai, M kax.
126. *Flea*. W N kokus (assimilated), c kok'as, SE tunkue, sw teoteo (assimilated); Md N, s tökösi; Y N, v, k bak'il, t bak'id, p bak'el; Mw s, p, co, L kuku, c, N kukusu, co kukus; C B, M por.
127. *Grasshopper*. W N, c nep, sw taram; Md N, s eni; Y N tanuwa-te, v tsanaiwu-e, k danaiwu-te, t teaneka-e; Mw s anut.
128. *Worm*. W N kye-s; Md NW kape, NE kayi, s pep; Y N, k k'eu, k k'ewa-s-k'ewa-s, k, t gaťu.
129. *Name*. Md N yawi; Y N, v, k, t hoyowo-e.
131. *Black* (1). W N teululi (assimilated), c kut'a, SE tiloki, sw silia; Md NE kölö-m, s köle-m; Mw c, N kululi, p kulu-lu (assimilated); C F colko-te, J cirke-wis.
132. *Black* (2) (cf. 73, *Night*). W c molok, SE multi; Y N motsko-n, v moteko, k moťki-wik, p moťka; Mw co muluta, L mulu-mulu; C CL murtu-e-mini, CR murtu-s-min, B hu-mulu, mureťu, murteu.
134. *Large*. Md s muku; Y N, v maťek, v mayek, t meť; Mw co omotak; C B mati-li; and possibly W c komaso, N bohema.
135. *Small*. W N kuta, SE kueu-n, sw kutei, kuci; Md NW nukti; Y N goli-s, gote-te, v gođi; Mw s teini-miteu, c tuni-tei, p ititi (assimilated) L kucei (borrowed from W sw); C J kuteu-wie, CL kueue-min.
136. *I*. W N, c ni; Md N, s ni; Y, all, na; Y P gen ("my"); Mw, all, kanni; C F, J kana, CR, B kan, B, M ka; W s teu. There are probably two elements, k and n-, sometimes combined, sometimes used singly.
137. *Thou*. W, all, mi; Md, all, mi; Y, all, ma; Mw, all, mi'; C F, J, CL me-ne, B me-n, M me.
138. *We*. Mw s mahi, c, N, P maci, co mako; C J makin, CL maken, CR maksent, B makse, M mak.
139. *This* (1). W N, s eu; Md NW, s hede; Y N hi, v hihi, k ke, t xe, p, B xi.
140. *This* (2). Md NE uni; Mw s, c, p ne, N nei, co ni; C CL, CR, M ne-pe, B ne.
141. *That* (1). Md NW, s hodo; Y N, v ki, v, t ka, k kai, t xi, p xo, ko, B xuntu.
142. *That* (2). Md NE ani; Mw c, p, co no, N noi; C B nu-, M nu-pi.
143. *That* (3). W N, s pi; Md NW mo, NE, s mö; C B, M pina, nu-pi, ne-pe (*this*).
144. *Who*. W c popi, sw popa (assimilated); Md NW mene, NE homoni, s homökö; Y N, k, t, p, B wat, v waťuk; Mw s, c, N mana, p, co manti; C F, CL mato, J maťo, CR atu, B ate, M amp.
145. *What*. W N heke (*where*); Md N, s hesi; Y N hata, v han-uk, k hanta, t, p han, B han-wil, Mw p hiti, co hinti; C P hiňo.
146. *Up* (1). W N, c olel; Mw s, c, N, co, L lile; C J rini-mu, B rini.
147. *Up* (2). W s panti; Md NW hipi-nak, NE hipi-na; Y N teipin, v, k, t řipin, B řipan; C M tapre.
148. *Down*. W N, c ken, s teenti; Md NW kana-nak, NE kanai-na; Y B xoni-u; Mw p wanti; C B winimui, M winum.

149. *Tomorrow* (1) (Cf. 69, *Sun*). W N hima; Md NW himaduk; Y K, T hiemxae, B hümdja.

150. *Tomorrow* (2). W S bina; Md NE bene-ki; Y V bayi-u.

151. *One*. W N, C kete-m, C kete-t, S ete-ta; Md NW wökte, NE söti, S wite; Y N, T yet, V yet, K yete, P, B yit; Mw S, C keñe, P kena-tu, CO, L kenne.

152. *Two* (1). W N, C pale-t, S pampa-ta (assimilated); Md N pene, S pen; Y N, K punoi, V ponoi, T, B poñoi, P puñi.

153. *Two* (2). Mw S, C, N oti-ko, P oyo-ke, CO ossa, L otta; C J utsi-n, CL uti-n, CR uthi-n, B uñxi-n, M uti-s.

154. *Three*. W N, C panoL, SE ponoL-ta, SW punuL-ta; Md N, S sapwi; Y N, V, K, T copin, P cop, B copí; C J, CR, B kapha-n, CL kapa-n, M kape-s.

155. *Five* (1) (cf. 28, *Hand*). W N, C tean-sem, S ete-sem-ta; Md NW ma-tsani; Y N, V yit-sinil, K yit-ienil, T yüt-ciñud, P yet-sili, B yit-süñul, C J, R mi-eur, CL mu-eur.

156. *Five* (2). Md NE ma-wika, S ma-wik; Mw S ma-hoka, C ma-soka, M mo-soka, P ka-soko.

157. *Six*. Md N saitsoko, Y N, V, K, B te'olipi, T te'udipi, P te'ilipi; Mw S, C, N temoka, P temepu; C J, CL, CR, M sake-n.

158. *Eat* (1). Y N, V xat; C M kat.

159. *Eat* (2). W N, C, S ba; Md N pe, S payel; Mw S, C, N uwu; C F amu-, J, CL, CR amai, C ama.

160. *Drink*. W SE elu, SW tete (assimilated?); Y N, V, K, T ukun, P okon, B ukon; Mw S, N uhu, C usu, P use, CO, L ussu; C F owato, J uweto, CL weto, CR uit, B uki-si, M uki-s.

162. *Dance* (1). W N teuna, C ken-teon, SE tono, SW ton, tolo; Md NW kamini; Y N, K, T ka'm; Mw S kalañe, C kalanu, N kalte, CO kawul; C CL to-ken, CR, B teite, M teit.

163. *Dance* (2). Md NE wete-mdo; Y N woñi, T woti-yot, P wodoy, B wutei.

164. *Sing*. W SE muhi, SW muhu, S muhe; Mw S, N muli; C müli.

165. *Sleep* (1). W N xina, C keno, S k'ana; Y P k'eneu ("lie" in other Yokuts dialects).

166. *Sleep* (2). Y K eñtim, T eñtam, B iñati; Mw CO ete, L ets; C J eñe, CL etin, CR etcen, B eñen, M eñn.

167. *See*. W SE te'o, SW teowi; Md N tse; Y V eil, P dileu.

168. *Kill*. W N loma, S limo; C J, CL, CR, B, M nimi.

169. *Give*. Md NW me, NE, S mei; Y N, V, K wan, V, T waki, P wa'en, B wa'an; Mw CO wa.

170. *Laugh*. Y N, K, T hai, V, B haya, P hayau; Mw CO hawai.

171. *Cry, Mourn*. W N watea, SE wati, SW watu; Md NW won, NE wakdo; Y N, V, K wahl.

6. Woman, †Girl (1)

W	N	po	k		-ta
		po	ki		-ta
		o	ki		-ta
Md	N, S		kū	le	
	Y		k'e	la	
Y	N, V	mu	k'a		-c
	T	mu	k'e		-s
	B	mu	k'e		
Mw	CO		ku	leyi	
	L	po	tsi		
C	CR	†mu	xa		-c
	B	mu	ku	r	-ma

14. Ear (1)

Y	N, V, T	tu		k	
	K, P	to		k	
	B	su		k	-a'l
Mw	S	to	l	ko	
	C, N	to		ko	-su
	P, CO, L	a	lo	k	
	P	co	lo	to	
C	J, CL	tu		k	-sus
	CR	e		teo	
	B	o		teo	
	M	tu		x	-s

26. Neck

W	N		do	ki	
	C		do	lu	
	S		tu	ku	-tuku
Md	NW			koyi	
	NE			kuyi	
	S			kui	-sok
Y	N		mi	ki	-c
	V, K		mi	k'i	-c
	T		mu	k'a	-c
Mw	C		lo	ba	
	N, P		to	pa	
	CO	he	le	ke	
	L	he	le	ki	
C	F		la	nai	
	J, CL		ra	nai	
	CR	ha	r	ko	
	M	ka	tc	k	

31. Nails

W	N		kaha	i	
	C		k'a	i	
	SE		te'a	i	
	SW		tca	i	
Md	NW	tsi'	bi		(Metathesis)
	NE, S	bi	tsi		
Y	B	go	teo	yi	-c
Mw	P, L		ti		
	CO	pi	tei		(Borrowed?)
C	J, CR		tu	r	
	CL		tu	r	-em
	B		tu	r	-is

37. Foot, †Leg (1)

Y	K	wo	to	n	
	T	wu	to	n̄	
	B		ta	na	-hi

Mw	S, C, N		†tu	ñu	
	P		†tu	na	
	S, C, N	ha	te		
C	CL	ha	ta		-m
	CR	ha	ta		-c

42. Blood (1)

Y	N, V		pa	ya	x
	K, B	he	pa		
	T	hō	pa		
	P	hi	ba		
C	F, J, CL, CR		pa	ya	n
	J		pa	tia	n
	M		pa	tca	n
Mw	S, P, CO, L		ki	tca	u
	C, N		ki	tca	wu

44. Liver

W	N	ki	la		
	C	te	Li		
	SE	tei	la		
	SW	tce	la		
Md	N	kū	la		
	S	ku	la		
Y	N, T, P	di		p	
	V	di	'	p	
	B	di	'x	p	
	K	da	la	pi	-c
Mw	CO, L	ku	lla		(Borrowed?)
C	J, M	si	ne		

59. Bow

W	N	ku	lu	l		(Assimilation)
	C	ku	l	sa	k	
	S		nu	n		(Assimilation)
Md	NW	pa	n	da		
	NE	pa	n	da	ka	
	S	pa	n	da	k	
Y	N, V	da		la	p	
	K	da		li	p	
	T	da		ya	p	
	P	ge	ts	ñi		-l
	B	ga	tsi	ñi		-l
Mw	C	so		llo	ku	
	P	ta		nu	ka	
	CO, L	ko		no		
C	J	co		no	k	
	CL	ta		nu	ka	-m

72. *Star*

W	N, C	Lu	yu	k	
	SE	La	ra	k	
	N	tsa		tu	-s
	SE	ti	la		-men
	SW	ta		ti	-men
	SW	to		ti	-mel
Md	NW	lū	lū		(Assimilation)
	NE	lō	lō		(Assimilation)
Y	N	ts'a	ya	ta	-s
	V	tca	i	ta	-c
	K	tca	i	to	-c
	T	tc'o	i	to	-c
	P	tso	yo	ti	-s
	B	tso	yo	to	-s
Mw	S	tca	la	tu	
	L	to	le		

77. *Rain*

W	N		lu	he
	C		lu	ha
	SW	yu	ru	
Mw	S, C, N		nu	ka
	S	u	mu	tca
	P	ho	ma	
	CO, L	u	pa	
C	F	aa	nau	
	J, CL	'a	mne	
	CR	a	mani	
	M	i	nam	
	M	i	nlam	

80. *Smoke*

W	N	nu		k	
	C	no		k	
	SE	mo		ko	
	SE	ma		ka	
	SW	no		lo	
Md	N		su	ku	
	S		su	k	
Y	V, K, T, B	mo	da	k	
	P	mu	ṭ	ka	
Mw	S		ha	ki	-sa
	C, N		ha	ki	-su
And possibly:					
	P			ka	li
	CO, L			ka	l

85. *Earth*

W	SE		wi	la	k
Md	N	ka	wi		
Y	T	ha'	pi	l	
	P	ha	ma	n	
Mw	S, C, N, P, L		wa	lli	
C	F, J, CL		wa	re	
	CR, M		pi	re	
	B		mu	n	

104. *Bear*

W	N, C	tsi	L		
	SE	tcu	ku	i	
	SE	si	ka		
	SW	ci	la	i	
Md	N	mō	de		
Y	N, V	u	lu	i	
	N	u	yu	m	
	V	mo	lo	i	
	K	do	noho	p	
	P	t'e	ne	i	
Mw	CO, L	ku	le		
C	J, CL, CR, B, M	o	re	s	

106. *Puma*

W	N	pa	ti	t	
	SE	wo	k'e	n	
	SW	pa	te		
Md	N	pe	ku	ni	
Y	N, V, K	we	he	ci	t
	T	wō	hō	ci	t
	P	wi	hi	ci	t
	B	wō	hō	sa	t
Mw	CO	upu	k	so	
	L	upu	k	se	
C	M	he	k	s	

120. *Salmon*

W	N, C	nu	t		
	N	nu	r		
	S	hu	r		
	SE	hu	l		
C	F	tei	ri	k	
	CL	tei	pa	l	
	CR	hu	ra	k	
	B	u	ra	ka	
	M	u	ra	k	

(Metathesis)

130. *White*

W	N	ka	ya		
	N	xa	ye		
	C	lu	yu	ke	
	SE	te'a	m		
	SE	sa	m		
	SW	tea	ma		
Md	SW	tea	lo	ki	
	NW	eda	li		
	NE	ko	ko		-pem (Assimilation)
Y	S	ko			
	N, V	djo	lo	l	(Assimilation)
	K	djo	ye	yi	(Assimilation)
	K	do	lo	li	(Assimilation)
	T	teo	do	d	(Assimilation)
	P	teu	ña	n	
Mw	B	tea	wa	ñ	
	C, N	ke	le	li	(Assimilation)
C	B	tea	l	ka	
	B	pa	l	ka	
	M	pa	xe	la	-st (Metathesis)

133. *Red*

W	N		te	di	
	C		te	de	ki
	SE		wa	ra	k
	SW		tu	lu	ka
Md	NW	e	la	la	k -no (Assimilation)
	NE		lak	la	k -pe (Assimilation)
Y	N		teo	yi	ki -n
	V		go	li	k -lai
	N	ha	bi	l	kai
	V	xa	bi	l	wai
	V		ba	tsi	gi -n
	K	ha	ba		ka
Mw	T		ba	dji	ki -n
	P	ho	lo	ts	gai (Metathesis)
	B	xa'	wa	l	
	C, N		we	te	ti (Assimilation)
	P		wû	te	te (Assimilation)
	CO		u	lu	ta
C	J		pu	l	te -wis
	M		yu	r	tsi -st

161. *Run*

W	S		wi	ti	li
Md	NW	ye	wo		
	NE		wi	le	no
Y	K	la	wi	t	
	T	da	wi	t	
Mw	S, N	hu	wa	te	
	C	ku	wa	tu	
	CO	hic	wa	te	

Other Cognates

As an example of how readily comparative material accumulates as soon as the formal comparative tables are abandoned on which the preceding list of resemblances is based, some kinship terms may be cited.¹⁶ These will be found on the following page.

To those familiar with the consistency with which the designations of the primary kinships run through the Indo-Germanic languages, this list may seem feeble evidence. But among the Indians of the Californian region no such conservatism exists. Within different parts of the same stock as formerly recognized the plan of kinship reckoning sometimes differs profoundly; and terms are often utterly different in form and meaning. Such variations, for instance, occur in Shoshonean,¹⁷ a stock which philologically is compact and has never been considered anything but a unit. By comparison the foregoing Wintun, Yokuts, Miwok, and Costanoan terms of relationship show all the connection that could be expected.

The following are also significant:

<i>Maidu</i> (s)		<i>Yokuts</i> (τ)
North	toeim	xueim (N, toxil)
South	komo	xomot
East, up-stream	noto	not
West, down-stream	tai	daṭu

There are a number of parallels in verb stems, outside of the material that has already been reviewed.

<i>Yokuts</i> (τ) ¹⁸	<i>Costanoan</i> (B) ¹⁹
wejiñ, <i>not find</i>	waian, <i>miss, err</i>
yom, <i>cuckold</i>	yume, <i>deceive, cheat</i>
mök, <i>swallow</i>	muiku, <i>swallow without chewing</i>
dañ (<i>d ex l</i>), <i>hear</i>	nam, nanm, <i>hear, listen to</i>
dadik, <i>hang</i>	laki, <i>hang</i>
bax, <i>fear</i>	poiko-ni, <i>frighten</i>
t'oñ, <i>drown</i>	titei, <i>drown</i>
döte, <i>be cold</i>	tur-si, <i>be cold</i>
to, <i>throw at</i>	tu, <i>strike in eye</i>
kem, <i>embrace</i>	kapal, <i>embrace</i>
teuyo, <i>urinate</i>	teala, <i>urinate</i>

¹⁶ Present series, XI, 437, 1916; XII, 172, 1916; XII, 352, 368, 1917.

¹⁷ *Ibid.*, XII, 367, 1912.

¹⁸ *Ibid.*, II, 246, 1907.

¹⁹ *Ibid.*, XI, 441, 1916.

PENUTIAN KINSHIP TERMS

	<i>Wintun</i> (SE)	<i>Yokuts</i> (T)	<i>Miwok</i> (C)	<i>Costanoan</i> (N)
older sister	ótu-n, usu-n	na'-at	tete	ta, taha
younger brother or sister	La-n		ate; teale (y. br.)	tare, tanse-s
grandfather	apa-n	papa (f.'s mother)	papa	
grandmother	ama-n		ama	ama (f.'s parents)
mother	na, ni-n		anüsü (step-mother)	ana
mother's brother		aka-c	kaka	
child's parent-in-law		makci	maksi	makas (husband); maku (marry)
father		opo-yo (vocative)	üpü	apa
son		enac (grandchild of man)	añsi	inis (man speaking)
mother's mother		kamits (v)	kumatsa (mother's brother's wife)	

Maidu (NE)²⁰

kot, kut, *divide*, ket, *graze*
 hī, *smell*
 kai, *fly*
 pedā, *steal*
 ā, *say*
 tō, *burn*
 not, *bend*

Yokuts (T)¹⁸

day, *step*, kiek
 dadik, *hang*
 dañ, *hear*
 ko, *hit with hand*
 tumi, *throw*
 ʔaw, *pay*
 teaw, teañ, *shout*
 xapit, *pull out*

Maidu (NE)²⁰

huk, *whistle*
 tap, *squeeze*
 tus, *break*
 tse, *see*
 hēno, wōno, *die*

Yokuts (T)¹⁸

kōt, *tear*
 hōñ, *smell* (Mw, hukaye, *smell*)
 hay, *fly*
 mud, *cheat* (Mw, motca, *hide*)
 ah, *cry*
 tud, *burn*
 nokum, *bend*

Miwok (N)²¹

tekme, *kick*
 yōtki, *hang*
 toloye, *hear*
 kute, *knock with hand*
 dōbe, *throw*
 tiwa, *buy*
 kauñe, *shout*
 kōpa, *pull*

Miwok (N)²¹

kuyage, *whistle*
 tupi, *press*
 taswa, *break*
 ete, *see*
 yina, yunu, *kill*

CHANGES OTHER THAN SOUND SHIFTS

Before the sound equivalences of Penutian can be examined advantageously the scope of several disturbing factors must be considered. These are: expansions, contractions, assimilation, metathesis, analogizing, and reduplication.

Expansions

Expansions of one syllable to two occur in all the Penutian languages, but are uncommon in the two western ones, Wintun and Costanoan. Yokuts is decidedly the most given to the practice, more than a tenth of its words, if the list here dealt with is representative, manifesting an initial increment. Since no Penutian language possesses prefixes, except for a few semi-etymological elements preposed to the Maidu verb, these increments are of phonetic origin. Most of them consist of a mere vowel, or a vowel preceded by *h-*, which occasionally is replaced by *x-* or *k-*.

²⁰ Bur. Am. Ethn., Bull. XL, 723, 1910.

²¹ Present series, IX, 288, 1911.

Thus, *wood*, Y hi-t'ec, W teus, tok' (for t'ok?), Md tsa, Mw susu (by assimilation). Again, *ash*, Y ha-pac, W puk, put, Md pupu (assimilated); *water*, Y i-lik, Mw kik (assimilated), C si; *boat*, Y o-won, Mw wote, C wali, walin; *blood*, Y κ, β he-pa, Y N, v payax, C payan, Mw kiteau; *horn*, Y i-cel, W teili, k'ili. In most of these instances the vowel or syllable added initially by Yokuts is compensated for by a vowel, more rarely by a syllable, lost at the end of the word. The operative process is therefore similar to that which, within a single Yokuts dialect, produces en̄tīm-ji and iñētīm-ac; amd-in and amad-ad; amāt-ji and aūt-ud; teōnic and tean̄j-in; wükteamni and wükatcmina; naxamic, naxmica, and naxamca; onmid, unimda, onemadi, and onimidi. These changes of quality and position of vowel within Yokuts are in many cases accompanied by a shift of accent, which indeed is probably the primary cause of most of the vocalic mutations. Now it is significant that in the cases cited, and apparently generally in words to which Yokuts prefixes a syllable as compared with the other Penutian languages, the added element is not a slurred approach but the stressed part of the word. Compare i'-cel with Wintun tei'li; and, between Yokuts dialects, he'-pa and pa'yan. There can be little doubt, accordingly, that the numerous increments of Yokuts are really such and are connected with a set of inclinations otherwise manifest within the language.

More difficult to understand are a few cases in which Yokuts possesses an initial syllable with a dental stop lacking in other languages; as, *buckeye*, Y do-pin, du-pun, Md polo-m-tsa, W pasa; and *jackrabbit*, Y do-pol, ca-pal, te'a-bakiu, W patkili, Md (*rabbit*) palal, Mw e-pali, e-plali, a-ule. But here again Yokuts loses at the end the equivalent of the syllable it adds at the beginning.

Of somewhat different type is an occasional Yokuts expansion of the vowel of a first syllable into two. Thus, *girl*, Y guyoyam, kaina, Md konai, Mw koya, kola, C kāta; *boy*, Y P kohutem, N, v, κ, τ notco, C kotco; *louse*, Y tihit̄, Md di, W donu, Mw ken, ketu, kaxai.

Other cases of Yokuts increments will be found in 53, 85, 110, 129, 133.

It should be added that Yokuts increments are usually confined strictly to that language, whereas when other languages show an addition this more frequently reappears in a second tongue also. To be specific: thirteen of sixteen Yokuts increments are peculiar, but only eleven out of an aggregate of nineteen in the four other languages.

Miwok increments appear in stems 26, 68, 106, 118, 134, 135, 102,

109, and perhaps 110. They consist of a vowel, usually without *h*-. All but the last three examples are confined to the Plains, Coast, and Lake dialects. The three Sierra dialects, although geographically between Yokuts and Maidu, appear to entertain an aversion to initial expansions.

Maidu expansions are discernible in 85, 117, 122, 130, 133, 144. All but the last appear in the Northwestern dialect; the Northeastern and Southern participate less regularly.

Wintun increments are probable in 56, 122, 146, and Costanoan in 26, 101, and perhaps 118.

Contractions and Reductions

Loss of the initial syllable by contraction or outright apocope is sometimes difficult to distinguish from an initial increment, when a stem is traceable in only two or three languages. There are however undoubted cases, like *fish*, Mw P pu, s lapisai, co lota, Y lopit; *grass*, *brush*, C CR wai, F yawa, Y yawil; *sun*, W sas, con, Y P hicta, Mw hiema, hi, C iemen; and *bow*, W s nun, N kulul, Mw c solloku, etc., as shown in the columnar presentation of stem 59. Other certain or probable cases are 6, 26, 28, 31, 33, 37, 46, 58, 67, 73(?), 77, 78, 79, 80, 96, 112, 121, 127, 147, 154, 159, 164.

The uncertainty whether any given form represents an apocope in one language or an increment in another is compensated for by the certainty that the tendency of each language in the two opposing directions is in inverse ratio. Yokuts, with most increments, has fewest losses. Wintun adds rarely, but lops off most frequently. Costanoan alone departs rather uncommonly from the Penutian average by either expanding or reducing the head of the word, and may, therefore, be regarded as preserving intact the initial syllable of the original Penutian stems more frequently than any other language. Thus:

	<i>Increment</i>	<i>Apocope</i>	<i>Total</i>	<i>Net changes</i>
Wintun	12	3	15	—9
Maidu	9	6	15	—3
Yokuts	3	16	19	+13
Miwok	9	8	17	—1
Costanoan	4	3	7	—1

In summary, so far as the first syllable of stems is concerned, Wintun tends most to shorten and Yokuts to lengthen or preserve its words.

The same inclinations appear in medial and final syllables. Wintun again cuts them away; Yokuts maintains them almost without exception. Maidu lops many words at the end, but almost invariably preserves the middle one of three syllables, however much altered.

Examples of the loss of such syllables, or their consonant, so far as is possible to determine in the incomplete knowledge of Penutian suffixes, are:

Medial Syllable

Smoke, W nuk, moko, Y modak, Md suk, Mw haki-su
Breasts, W imit, Mw musu, Y minite, meniṭ, Md nuni
Night, W ken-, leni, sinol, Y toyon
Flea, C por, Y bak'il, W tunkuc, kok'ac, Mw kuku
Puma, W patit, Y wehecit, Mw upukse, Md pekuni
 See also 14, 33, 34, 36, 44, 49, 57, 65, 71, 100, 114, 118.

Final Syllable

Teeth, W si, Md tsiki, Y teli, C sit, Mw kutu
Hand, C puts, Y puṭoñ, Mw (arm) patean
Blood, Md sede, W dedeki, sak (ex s-d-k)
Faeces, Md piti, Y pidik
Sinew, Md paka, Y pikil
Pestle, Md suni, W satak, taki (ex s-t-k)
Cloud, W N, c k'a, s k'ira, Y k'ilei, Mw ya-kal
Mountain, W teol, toL, Y dulul
Mountain, Mw leme, Y lomit, Md yamani
Grass, C yawa, Y yawil
Sugar Pine, W, Md sumu, Y teonoxi-c
Manzanita, Md üpü, Y aptu, W paka, pai
Fox, W, Md hau, Y au'dja
Salmon, W nur, hur, hul, C hurak, uraka
 See also 22, 23, 24, 30, 32, 37, 38, 48, 50, 68, 69, 72, 79, 85, 87, 100, 101, 117, 128, 130, 131, 133, 167, and perhaps 44 and 57.

It is possible that some of these forms are better explained by the addition of a suffix in some languages—as perhaps *-l* in Yokuts—than by the loss of a stem syllable in others. But the variety of final syllables that appear and disappear is too great to allow this explanation to be extended to more than a fraction of the cited cases.

The tendency toward apparent loss of the characteristic element of any syllable of the stem is summarized in these figures:

	<i>Initial syllable</i>	<i>Medial syllable</i>	<i>Final syllable</i>	<i>Total</i>
Wintun	12	9	13	34
Maidu	9	2	14	25
Yokuts	3	3	1	7
Miwok	9	5	8	22
Costanoan	4	3	4	11
Total	37	22	40	99

Metathesis

Outright interchange of the consonants of two successive syllables is not infrequent, especially in Maidu. Yokuts is again most conservative.

Old man, W sw teiak, c kias, n kiemi-la, Md nw kano, Mw s humele-tki, possibly Y moxelo.

Tongue, Mw c, p nepit, n nepitu, L letip, s, co lemtep, c lase, etc.

Beard, Md s masau, n simpani, W s sep-sep, Y damuť, djamoc.

Nails, Md nw tsi'bi, NE, s bitsi, Y b gotcoyi-c, Mw co pitci.

Belly, C m pitin, Mw L puluk, Y n balik, W sw bus.

Knee, Md n pokosi, s pokok, W puiyak, pomok, Y opuk, kuyuť.

Skin, Md potom, potani, posala, (ex t-p-l or t-p-n), Y ɬaplan, tapia, p'alai, to-top, etc.

Pipe, W topor, dopo, C torepā, etc.

Lightning, Md wipili, wispil (ex w-l-p), W waluka, Y walma, C wilka, wilep.

Buzzard, Mw n, p teuhu, c husu, L hus, Y hoť, hots, Md hōsi, W hus.

Frog, Md NE, s wakat, W watak, Y watak-sai, Mw wataku-na, C wakatse-m.

Salmon, C CL teipal, f teirik, CR hurak, W hul, nur, etc.

Red, Y p holotsgai, n habilkai, v xabilwai, n teoyikin, W sw tuluka, c tedeki.

As between *sleep*, Y eñim, iñaťi, C eñen, eñn, metathesis is probable, but in which direction is difficult to decide.

Assimilation

Assimilation of consonants is about as frequent as metathesis. It is restricted almost wholly to sounds of successive syllables. Juxtaposed consonants are confined to the interior of words in Penutian, are rather uncommon even there, and apparently are less inclined to modify each other when in direct contact than when separated by a vowel.²²

²² All Penutian language show a few cases of consonant collocations of the type *nt* or *mb* which seem to be secondary expansions of an original nasal or original stop. Thus, Mw s huntu, *eye*, Md, C, hin; Md n simpani, *beard*, Y damuť, djamoc, W s sep-sep. But this process is of sporadic occurrence. In general, juxtapositions are due to two sets of causes. The first is the transposition of a vowel, or its loss; as *breasts*, Y, v, t, b miniť, k minteix; *smoke*, Y, v, k, t, b mođak, p muťka; *sleep*, Y b iñaťi, K eñim, C b eñen, x eñn; *black*, C f colko-te, W se tiloki. Such organic juxtapositions, or modifications of the pure stem, are abundant in the two southern Penutian languages, but rare in Wintun. The second kind of consonant collocation is due to word building, by suffix, composition, or reduplication. Thus, *knee*, C m dol-s, Mw L tokollo; *what*, Y b han-wil, t, p han; *beard*, W s sep-sep. Juxtaposition of consonants due to these causes appears to be about as frequent in the Penutian languages as that of the preceding class, except in Yokuts, which is in general most given to vowel shiftings and mutations but has few suffixes and almost no compounds. Initial consonant combinations are not tolerated by any Penutian language. A few contrary examples in Costanoan, like ck "gruwam," *house*, and "trepam," *pipe*, are almost certainly faulty orthographies, as shown by the cognate forms ruwa and torepā in near-by dialects. Costanoan, and this is true of several of its dialects, is the only Penutian language that permits final combinations: Monterey evinces the trait most markedly. The "doubled" consonants of Miwok, as in kanni, *I*, awannata, *turtle*, cappa, *tule*, walli, *earth*,

Tongue, Md s alili, Y talxaʔ, a'lada-s.

Shoulder, Md dadaka, Y gapeal, gapasai.

Breasts, Md NW nuni, Y minite, etc.

Knife, Mw L tsitsa, C teipa, ʔip, Md tsami.

Ash, Md NE pupu, W puʔ, puk, Y hapae.

Fly, W N lulit, Md NW amelulu, C CR mumura, W SE homota, Y monoyi, p'anuck'ai.

White, Md NE koko-pem, Y djolol, djoyeyi, dololi, Mw c, N keleli, W c luyuke, SW tealoki, Md NW edali, C B tealca.

See also 43, 59, 72, 83, 109, 110, 126, 128, 131, 133, 135, 144, 152, 160, and perhaps 90.

The number of instances in the vocabularies used is Maidu 11, Miwok 8, Wintun 8, Yokuts 2, Costanoan 1.

Analogizing and Reduplication

Analogizing has obviously affected the numerals, pronouns, and demonstratives in several Penutian languages. Whether its influence may be traced to any notable extent in nouns and verbs can only be ascertained through more intensive study.

Reduplication of any sort is rather rare in Penutian. There are a few cases of its occurrence in stems: Yokuts hon-hon, *heart*, p'ia-piya, *cloud*, ʔiwi-ʔiw, *rattlesnake*, k'ewas- k'ewas, *worm*, Wintun sep-sep, *beard*, teil-teil, *bird*, pat-pat, *tule*, Maidu pok-poko, *tule*, Miwok mulu-mulu, *black*, possibly Yokuts nono, *man*, caca, *eye*. Maidu may have more cases, but they do not occur in the foregoing list.

Summary

All in all, it appears that in stem modifications due to other causes than sound shifts Costanoan and Yokuts are most conservative of original Penutian form, though the latter inclines somewhat to elaboration; that Wintun and Maidu are most given to reductions of consequence; and that Maidu shows the largest number of other distortions.

SOUND EQUIVALENCES

Stops

All known dialects of the three "Pen" languages possess three classes of stops: surds; sonants; and glottalized surds. The surds are less aspirated than in American English, perhaps, or the sonants

are proved by the non-Miwok cognates to be mere lengthenings of originally simple consonants, apparently under the influence of the stress accent falling on a short vowel immediately preceding. There is no clear case of one of these long Miwok consonants springing from assimilation of two distinct sounds brought into contact.

more briefly voiced: at any rate the two classes are not infrequently confounded in orthography. The glottalized stops are produced rather feebly, on the whole; enough, at any rate, for the application of the term "fortes" to them to be misleading. These sounds have also been recorded with considerable inconsistency. In both "Uti" languages, the three types of stops have come to coincide. At least, the data are so uniform on this point that if differences in voicing, breath, or glottalization survive in the stops of these two languages, they must be near the threshold of perceptibility.²³

So far as can be judged, under the orthographical difficulties indicated, the three classes of stops have shifted rather than maintained themselves consistently in the Pen languages. This is particularly clear for the sonants. The only apparent case of a voiced stop persisting in dialects of all three languages is 150, *tomorrow*, W s bina, Md NE bene-ki, Y v bayi-u.

Maidu sonant stops seem to be generally represented by nasals in Wintun, and by either nasals or surd stops in Yokuts; *l* and *y* count as equivalents of *n* in this connection, so far as origin of Maidu *d* is concerned. Compare the regular conversion of generic Yokuts *l* to *d* in the Tule-Kaweah group.

	W	Md	Y
15	m	b	
107	n	d	
1	n	d	y
59	l, n, (s)	nd	l, y, (ñ)
125	n, r	d	t
104	l, (l, k)	d	l, y, n
68		b	p
53		b	p

Yokuts sonant stops remain stops but have more frequently been written as surds in Wintun and regularly so in Maidu. The Miwok and Costanoan equivalents are usually stops.

	W	Md	Y	
124		k	dj, tc	
8		k	g	
66	b	p	b	
11	d	tc	d, t	
25	b	p, w	g, w	C: w
33	b		b,—	
135	k	k	g	

²³ One of the authors has recorded sonant stops in Northern Miwok (present series, ix, 279, 1911) and in Costanoan (*ibid.*, ix, 250, 1910), but the inconsistency of his orthography leads him to doubt whether there is more than one class of stops in either language.

126	k, t, tc	t	b	
59	k	p	g, d	
121	(s, m)	p	d	Mw: t, h
133	k	k	g, k, w	
24	tc, s	s	dj, d	
110	tc		d, tc', t	
86	t, tc		d	
108	k		xg	

Glottalized stops have probably been recorded even less dependably than voiced ones. Half or more of those written in Yokuts appear also in the corresponding Wintun words. Where there is discrepancy, the orthography may be at fault—the Wintun data being from a variety of observers. Maidu presents fewer parallels, and these show either unglottalized surd stops or sounds other than stops. In fact, the Maidu vocabularies utilized happen to reveal almost no instances of glottalized sounds, although the class is well established for the language. Miwok and Costanoan normally have surd stops where Yokuts or Wintun have glottalized ones.

	W	Md	Y	Mw	C
90	tc', t' ²⁴	ts	t'	s	
75	k'		k'	k	
98	g, k		g, k'	k	
165	k'		k'		
128	ky ²⁵	k	k', g		
126	k, k'	k	k'	k	
26	k	k	k'	k, p	k
72	ts, t, L		tc', ts	tc, t	
31	k', tc', k, tc	ts	tc ²⁶	tc, t	t
106	k'	k	h	k	k
33	s		k', k	k	
157		s	tc'	t	s
122	m	m	p', m		m
61			t'		t, t̥
41			tc'	(tc)	t, t̥, tc

The known relations of Penutian stops can be provisionally and incompletely summarized as follows, labials being used as examples:

W	Md	Y	Mw	C
m	b	m	m	m
	b	p	p	
b	p	b	p	p
p	p	b	p	p
p'	(?)	p'	p	p

²⁴ tc'ok, t'ok, conjecturally reconstructed from recorded teok', tok'.

²⁵ ky for k'?

²⁶ Buena Vista dialect only.

Palatal T Series

Original Penutian seems to have possessed two series of *t* sounds: one produced against the teeth, the other against the gums or anterior palate, probably with an arched tongue. These two sets of sounds persist in Yokuts and Costanoan, where they are readily distinguished, the posterior *t*, rendered *ʈ* in this paper, having been variously written *tr*, *thr*, *ths*, *tc*, and the like. In Miwok the two series appear to be still distinguishable, especially in the Coast and Lake dialects; but in the Sierra idioms they are so nearly alike that their orthographical separation has either not been attempted or has been accomplished with obvious inconsistency. For Maidu and Wintun there are no reports of *t* sounds in more than one position.

That the distinction of *t* and *ʈ* is original in Penutian, in spite of its absence from the two northern languages, is indicated by several circumstances: First, both sounds coexist in the majority of Penutian tongues; second, these languages belong to both the Pen and the Uti branches; third, *ʈ* several times appears in the same stems in Yokuts and Costanoan: for instance, 11*a*, 12 144, 166, and perhaps 132; finally, the equivalents of *ʈ* in the three northern languages are other sounds more frequently than *ʈ*, especially *s*.

Y *ʈ* = Md *s*, 18, 24, 80, 111, 112, 115; *h*, 147; *s*, *t*, 46; *ts*, 21; *k*, 34; *l*, *n*, *d*, *p*, etc., 11, 11*a*, 27, 59.

Y *ʈ* = Mw *s*, 32, 59, 111, 118; *h*, 80, 115; *tc*, 29, 58, 166; *k*, 21, 59; *n*, 11*a*.

Y *ʈ* = C *s*, 21; *s*, *t*, 59; *ts*, 29; *t*(ʔ), 147.

Y *ʈ* = W *s*, 21, 111; *ts*, 24; *k*, 29; *L* 18; *l*, *n*, 11, 11*a*; —, 80, 147; *t*, 24, 32, 112, 115.

It thus appears that *ʈ* is represented by *ʈ* in Yokuts, *ʈ* or sometimes *s* in Costanoan, *s* in Maidu, *s*, *h*, or *tc* in Miwok, and *t*, *s*, or other sounds in Wintun.

P and K

Equivalences between *p* and *k*, or between labials and palatals, are common, and rather striking in view of the complete absence of labialized palatals of the *kw* type from all existing Penutian forms of speech. That *p* and *k* do positively correspond is clear from the number of instances in which they substitute interdialectically within a language. Each of the Penutian languages presents such cases.

	W	Md	Y	Mw	C
24	k, p	mp, m	m		
99	k, p			k, p	
76	k	k, p	m		k, p
75	k'		k', p'		k,—
109	p	p, b	p, k	p, w	
26	k	k	k'	k, p	k
110	—		p,—	k, p	
157		k	p	k, p	k
42			p	k	p
125	p, d	p, d	t	k	k
126	k, tc, t	t	b	k	p
23				p	k, x,—
59	k,—	k,—	p,—	k,—	k
127	p, m	—	w, k		

There is no great regularity; but on the basis of prevailing type of sound, the labial and palatal would seem to have been original one about as often as the other; while Yokuts, and next to it Miwok, to have been most given to alteration.

S and K

A very apparent sound equivalence is between *s* and *k*. This holds good between Miwok and Costanoan in both directions, and again between Yokuts and Wintun, so that it may well be regarded as a fundamental trait of Penutian phonology.

	W	Md	Y	Mw	C
		<i>Costanoan k, Miwok s</i>			
9	—	k, ts		s	k
138				s	k
160	l		k	s	k, t
		<i>Costanoan s, Miwok k</i>			
19		k		k	s
28				k	s
83		k		k	s
101	k	k	s	k	s, tc
		<i>Yokuts s, Wintun k</i>			
20	k	s	s		
51	k', tc		s		
82	k		s		
81	k, t		s		
88	k, t, s		s, x		
90	k, s	—	s	s	
		<i>Various</i>			
154		s	s		k
123	k				s
4	k', tc, s			s	s,—

The *s* is often, in Yokuts, the modified sound written *c*; and, especially in Miwok, alters dialectically to *h*; but the shift between *k* and *s* seems to have occurred through *t* or *tc* rather than *h* or *x*. The first two groups in the list give the impression of *k* being the original sound, the third of *s*; but the indications remain to be substantiated. If they are correct, Maidu perhaps preserves the original sounds throughout.

L and K

A curious correspondence, both within Wintun and between it and other languages, is that of *k* and *l*. Explanatory transitions are lacking. The *l* occurs on both sides.

Smoke, W *n* nuk, *c* nok, *se* moko, *sw* nolo, *Y* modak. *K* is original.

Bear, W *se* teukui, *sika*, *sw* cilai, *n*, *c* tsil, *Y* ului, *moloi*, *t'enei*, *Mw* kule, *C* ores. *L* is original.

Drink, W *n* elu, *Y* ukun, *Mw* uhu, *usu*.

Sing, W *s* muhi, *Mw* muli, may be cited in this connection.

Fish, W *n* diket, *c* teit, *s* tir, *til*, *C* *m* kinir, is not wholly certain.

Neck, W *n* doki, *c* dolu, *s* tuku-tuku, is also open to some doubt, on account of forms like *Mw* co heleke.

Water, *Y* ilik, *Mw* kik; *white*, *Y* djolol, *W* *sw* tealoki; *black*, W *n* teululi, *Mw* kululi, W *se* tiloki, *C* *f* colko-te, are more probably instances of assimilation; although assimilation, in most languages, generally occurs between sounds having one or more qualities in common; so that even these cases might indicate that Penutian felt *l* and *k* to be less far apart than we feel them to be.

Surd L

Surd *L* occurs in all Wintun dialects, but in no other Penutian language. Records sometimes indicate it as affricative; but it is known to be often a continuant, and may be always so. According to the available data the occurrence of the sound is rather irregular, each dialect in turn showing it in words in which the others have sonant *l* or other correspondences. Thus, *koL*, *kol*, *mouth*; *teLi*, *teela*, *kila*, *liver*; *tsil*, *silai*, *sika*, *bear*; *Loma*, *limo*, *kill*; in which the surd *l* is confined respectively to *se*, *c*, *n* and *c*, *n*.

The predominating equivalent in Penutian is *l*: 44, 86, 104, 116. Sometimes this *l* is perhaps a secondary development from *n* or from *m* through *n*: 20, 168.

A second equivalence that seems fairly well established is with *s* (*=h*), *tc*, *t*. Compare 16, 18, 72, 130, and perhaps 99.

A supernumerary final *-L* in 89, 105, 154 suggests a Wintun suffix. Thus, 105, W *n* wima, *c* wemaL, *Md* pano.

R

All five Penutian languages have *l*, but *r* is found only in the two western ones, Wintun and Costanoan. As one of these is of the Pen and the other of the Uti branch, the question is fair whether *r* may not be an original Penutian sound distinct from *l*, though now merged with it in the three eastern tongues.

Among the stems considered, *r* is common to Wintun and Costanoan in scarcely half a dozen. Two are correspondences confined, so far as known, to Northern Wintun and San Juan Bautista Costanoan—extreme dialects several hundred miles apart: 113, *crane*, toriha-s, ture-s; 123, *spider*, kerek, tiras-min. Of these the latter must be accepted with reserve. In two other stems Wintun varies between *t*, *r*, and *l*, Costanoan has *r*: 119, fish, W diket, teit, tir, til, C kinir; 120, *salmon*, W, nut, nur, hur, hul, C, teinik, hurak, uraka, urak, also teipol, possibly by metathesis for teilap *ex* teilak *ex* teirak. A last case shows both languages varying between *r* and *l*; 133, *red*, W, tedi, tedeki (cf. *d* = *r* below), warak, tuluka, C, pulte-wis, yurts-ist.

Stems in which Wintun alone shows *r* are also not very numerous:

- 4, *boy*, W, r, n; Mw, l, n; C, l, n.
 40, *heart*, W, r, d; C, n, ny.
 72, *star*, W, r, l, y, —; Md, l; Y, y, i; Mw, l.
 75, *cloud*, W, r, —; Y, l, y, d; Mw, l.
 77, *rain*, W, r, l; Mw, n, m, p; C, n, mn, nm, nl.
 125, *louse*, W, r, n; Md, d, —; Y, t; Mw, t, n; C, x.

It appears that Wintun *r* corresponds to *n* more frequently than to *l*, both within and without that language; and that *d*, *y* and *t* are also equivalents.

Costanoan has *r* more frequently.

	W	Md	Y	Mw	C
2 <i>man</i>			t, t, xy	w, y, i	r
6 <i>woman</i>	—	l	l, —	l, —	r, —
11a <i>head</i>	n	n	t	n	r, t
26 <i>neck</i>	d, t	—	m	l, t	r, l, tc
31 <i>nail</i>	i	—	y	—	r
38 <i>foot</i>	l			l, y	r, l
44 <i>liver</i>	l, L	l	l', —	l	r
57 <i>house</i>	k'	h			r
65 <i>pipe</i>	d, t		t		tr, tor
71 <i>moon</i>				—	r, l
85 <i>earth</i>	l	—	l, n	l	r, n
104 <i>bear</i>	l, L, k	d	l, n, y	l	r
110 <i>bird</i>	l		n, (tc)	m, (tc)	r
122 <i>fly</i>	t		y, c, ts		r, —

126 <i>flea</i>	s, —	s	l, d	s, —	r
131 <i>black</i>	l, t'	l		l	r, l
132 <i>black, night</i>	l		t, tc	l	r
146 <i>up</i>	l			l	r
147 <i>up</i>	n	n	n		r
155 <i>five</i>	m	n	n, ñ, l		r

The equivalent is *l* most frequently in Miwok, rather less often than other sounds in Wintun and Maidu, and uncommonly in Yokuts. The next most usual correspondences are *n*, *d*, *y*, and *t*.

There is nothing in this evidence to militate specifically against the assumption of *r* as an original Penutian sound, but very little to support such a view. If secondary, *r* has clearly developed from both *l* and *n*, and has probably realtered to both these sounds as well as to *d*.

San Francisco Costanoan usually, but not always, replaces *r* of other Costanoan dialects by *l*.

The Palatal Nasal

The palatal nasal *ñ* occurs in the three Sierra dialects of Miwok (s, c, N), and the three southerly hill dialects of Yokuts (T, P, B).²⁷ The regular equivalent in other Miwok and Yokuts dialects is *n*. The *ñ* dialects of Miwok and Yokuts are not in contact, but separated by a tract of Northern and Kings River Yokuts dialects. All the Penutian *ñ* dialects border on Shoshonean speech, which generally possesses *ñ*. As in the case of mixed vowels, an alien origin for the sound is therefore indicated.

It is of course conceivable that *ñ* is an ancient Penutian sound which happens to have become altered to *n* in all except a few dialects; but this is unlikely because the Miwok and the Yokuts *ñ* rarely occur in the same stems. Miwok *tuñu*, *leg*, Yokuts *wutoñ*, *foot*, is the only instance in the comparative vocabulary used. On the other hand, we have 29, Mw *c woñotu*, s *patean*, Y *T putoñ*.

Moreover, *ñ* corresponds to other sounds than *n* in Wintun, Maidu, and Costanoan:

- 21 Y *tañi*, *teyi*, *teli*, Md *tsiki*, Mw *kutu*, C *sit*
 151 Mw *keñe*, *kenne*, W *kete*, Md *wite*, Y *yet*.
 155 Y *-ciñud*, *-sinil*, W *-sem*, Md *-tsani*, C *-eur*

Finally, *ñ* is unknown in Miwok and distinctly rare in Yokuts in initial position; which fact further argues against its being an original sound.

²⁷ The sound *ñ* occurs in Maidu, but usually through modification of *m* by following *k*, and apparently never organically.

It appears, therefore, that $\tilde{n}$ developed in Miwok and Yokuts through an analogous stimulus, probably acquaintance with Shoshonean; that this influence operated independently in the two languages; and in the main affected different words. The factors that determined under which conditions original n or other sounds became altered to $\tilde{n}$ or remained unchanged are wholly unknown.

Mixed Vowels

With the exact consonant equivalences of the Penutian tongues so little uncovered, it is hardly profitable to compare the vowels in general. There is, however, one class whose distribution makes an inquiry into their origin desirable. These are the unrounded mixed vowels usually written $\ddot{u}$ and $\ddot{o}$, although in the Miwok sources chiefly drawn upon in this paper they appear as $\hat{u}$ or u . These vowels have not been heard in Wintun and Costanoan, in Lake Miwok, nor in Northern, Valley, and Kings River Yokuts. They are restricted to Maidu, to the four interior dialects of Miwok, and to two of the four hill dialect groups of Yokuts. Now these Penutian dialects are all in the Sierra Nevada, across whose crest they adjoin, for the most part, on several Shoshonean dialects—Northern Paiute, Mono, and Kern River—which contain a mixed vowel also produced with unrounded lips. This Shoshonean vowel, usually represented by the character $\ddot{u}$ or $\ddot{i}$, has recently been shown by Dr. E. Sapir to be the normal Shoshonean equivalent of Uto-Aztekan e , which is wanting from the dialects in which the $\ddot{u}$ or $\ddot{i}$ appears. No other language in the Californian region is known to possess sounds of the same class, except Hokan Chumash, which is also in contact with Shoshonean, although with more southerly dialects than those enumerated.

There is thus a high *prima facie* probability that the $\ddot{u}$ vowel or vowels of Shoshonean and of the easternmost Penutian dialects and of the one Hokan language have had a single, common origin, their spread being an instance of diffusion from one to another or two other unrelated linguistic families. The sound occurring more widely in Uto-Aztekan than in Penutian or Hokan, its source in that family is suggested. The query now arises, how far intra-Penutian comparisons bear out these indications.

To begin with, Penutian $\ddot{u}$ and $\ddot{o}$ correspond to so many other vowels, and Uto-Aztekan $\ddot{u}$ or $\ddot{i}$ so regularly to e , that the probability of their origin in the latter family is strongly confirmed.

The Penutian *ü*-dialects, however, lie in two groups: a larger, comprising the overwhelming bulk of Maidu and Miwok speech; and a smaller, consisting of a minority of the Yokuts dialects. As these two groups are geographically discrete, they are best considered separately.

In Yokuts *ü* and *ö* occur most frequently in the Tule-Kaweah dialects, in which they are almost uniformly the equivalents of Northern, Valley, and Kings *i* and *e* respectively, although *i* and *e* are by no means lost. This establishes the distinctness of *ü* and *ö* from each other, as opposed to the unity of the Shoshonean sound variously rendered by *ü*, *i*, *ö*, *u*. The factors that caused their rise in Tule-Kaweah are wholly obscure: the Shoshonean influence was almost certainly their ultimate stimulus, but not their determining cause. In Buena Vista these vowels crop out less regularly, but can also hardly have been anything but secondary. This dialect group bordered on Chumash instead of Shoshonean speech areas.

For Maidu and Miwok the situation is more intricate. Instead of the simple rule *ü* ex *i*, *ö* ex *e*, there is an irregular variety of correspondences. The nature of these even suggests that it is by no means certain that *ü* and *ö*, *u* and *û*, are really distinct sounds. It seems possible that their difference is only in the apperception of recorders. There is, it is true, a somewhat greater number of cases of Maidu *ü* equating with other Penutian *u* and *i*, of *ö* with *o* and *e*; but the tendency is not sufficiently preponderant to dispel all doubts. Moreover, *ü* equates not only with the back vowel *u* and the front vowel *i*, but not infrequently with *a*. Similarly, Miwok *û* is sometimes clearly *u* and sometimes clearly *i* in Costanoan, whereas it appears to be almost anything in the Pen languages. Finally, Maidu *ü*; *ö* and Miwok *u*, *û* scarcely ever equate with each other. Shoshonean example may therefore be indirectly responsible for their presence also; but if so, it has certainly affected the two languages diversely and probably at different times. The principal available cases in the basic list of this essay have been collected in the attached tabulation, arranged so as to show what little regularity is visible.

It may be added that the Yokuts sounds present no correspondences with either the Maidu or Miwok ones.

It may therefore be concluded that the Penutian mixed vowels are of alien origin; that they are restricted to border groups of dialects; that three times they sprang up under the same stimulus, but probably independently, in as many Penutian languages; and that their history in these three tongues, although still almost wholly obscure, was quite different.

	<i>Penutian</i>	<i>Maidu</i>	<i>Yokuts</i>	<i>Miwok</i>	<i>Costanoan</i>
6	i	ü	e, (a)	*i	u, a
44	i, e	ü, u	i, (a)	*	i
104	i, (u)	ö	u, o	*	o
126	o, u	ö	a	u	o
126	u, o, a	ö	i	u	
131	u, i	ö		u	o
111	u	ö, u	o, u	u	
107	o	ö			
101	u	ü, u	e	u	u, a
45	o, u	ö	e		
57	e	ö			u, (i)
151	e	ö, i	e	e	
112	a	ö, —	a, (i)		
96	a	ü, ö	a, (u)		
72	a, u, i	ü, ö	a	a	
72	a, u, a	†ü, ö	(ya)	a	
81	u	ö, (u)	a		
16	u	i		u, û	i
21	u	i, a	e, a	u, û	i
47	e			u, (ü)	
161		e	a	u	
90	o, (u)	a	i, e, a	u	
164	u			u, ü	
159	a, (e)		o, u	u, û, ü, i	[o]
72				u	u
79			o, u	u, û, u, i	

*Coast dialect: u. †Probably assimilated.

Original Penutian Sounds

The consonant system of Penutian may be hypothetically reconstructed as follows, with doubtful sounds in brackets:

k	k'	g	[x]		
tc	[tc']	[dj]			
t	[t']	[d]	[c]		[r]
t	t'	d	s	n	l
p	p'	b		m	
		w, y, h			

The original vowels probably did not go beyond u, o, a, e, i. These may or may not have been differentiated as to openness.

ACCENT

Accentuation of words is by stress in Penutian, but has been too irregularly recorded to make its representation throughout this paper worth while. Accent is commonest on the penult and antepenult, but extends from the last to the fourth from the last syllable; it varies

in the same stem between different languages; and even between dialects within one language. Suffixed and compounded words alter their accent and must be distinguished from stems.

The rules governing accent are most fully apparent in Yokuts. Its normal place is the penult. From this it recedes to the antepenult, but never farther; nor does it seem ever to rest on the final syllable. It would appear that the accent is not inherent in any one syllable of the stem; not only because it shifts toward the end as certain syllables are added, but because as stems are expanded or reduced as between one dialect and another the accent moves to maintain the same relative place from the end. Thus:

mu'k'ac, muk'e'la
ta'lxat, tala'pis, a'la'das
ga'peal, ge'pcil, ta'pad, gapa'sai
tea'itac, tsaya'tas, tsoyo'tis

There are exceptions, but mostly open to some doubt.

ge'tsñil, ga'tsñil
to'yon, to'yonì
to'keo, do'pod, tu'kuyun

In case a syllable is internally amplified it may retain its accent; for example, ko'hutem, compare no'teo, Costanoan ko'teo; do'nohop, in which -noho- seems to represent -lo- or -lu-; ño'ho'o, possibly from the same root, or perhaps felt as a disyllable: ñoho'. Somewhat analogous is ho'nohon, dialectic for usual ho'nhon.

Diphthongs, even such as we should regard as mere juxtapositions of vowels, seem to be felt as single sounds in Yokuts: pi'tiu, ti'liu, teu'lui, pa'dui, po'lwoi, k'i'lei, u'lui, mo'loi, t'e'nei, co'xgoi, mo'nai, te'uñian, po'nai, and so on. Accordingly, several words that might seem accented on the fourth syllable from the end, really have the stress on the antepenult: p'a'nuck'ai, te'a'bakiu, pale'uyami.

Case suffixes as a rule do not alter the accent. The plural suffix usually causes a shift. Tense and mode endings of verbs differ. One class, composed chiefly of short *i*-suffixes, leave the accent; the other, mostly long-vowelled²⁸ *a*-suffixes, operate like the plural in *a*.²⁹ Thus:

Noun Plurals

napa'tum, na'ptim-a
naxa'mic, na'xmìc-a (objective naxa'me-a)
wüktea'mni, wüka'temin-a

²⁸ Or perhaps causing lengthening of the vowel immediately preceding the suffix.

²⁹ Present series, II, 190, 200, 212, 1907.

xoco'mo, xo'cim-a
 komo'yie, ko'myie-a
 mo'koi, moko'y-o
 guyo'dum, go'yum-a
 bañkala'tei, bañe'klate-i
 hiṭwa'yu, hiṭe'way-i
 tee'jej, teija'j-a
 mu'k'ac, muk'e'e-i
 añṭu, añṭa'w-i
 a'xid, axe'd-i
 tco'inok, teuye'nak-i
 a'gac, age'e-i
 o'nmid, one'mad-i (but oni'mid-i)

Verb Suffixes

a'mid, a'md-in, a'mid-ji, ama'd-ac, ama'd-ad
 e'ñṭim, i'ñṭim-in, e'ñṭim-ji, iñe'tm-ac, iñe'tm-ad
 ha'wid, ha'ud-inin, ha'wid-ji, hawa'd-ac, hawa'd-ite
 t'u'i, t'u'y-on, t'u'i-ju, t'uit'u'y-ud, t'oyat'ya'-nite, t'uyu't'yu-wue
 yi'win, ye'un-in, ye'win-ji, yuwe'n-ite, yuw-a'na
 yom, yo'm-un, yo'm-jo, yuma'-ac, yuma'-ad, yuma'-ñite

It is clear that change of accent is closely associated with a loss and appearance of vowels, with an alteration of vowel quality, and perhaps with length of vowels. Which of these several factors is primary, it is difficult to say. But it is certain that the majority of the more notable cases of the vocalic mutation or *ablaut* that is so characteristic of Yokuts, are, or once were, accompanied by shiftings of the accent. In their pure stem form, Yokuts words seem to be normally accented on the penult.

Maidu accent is more variable than Yokuts, and falls from the final to the fourth or fifth syllable from the end. Nouns and verbs differ, it would seem; but in both, vowel quantity is an important if not the deciding factor.

Nouns appear to go by the rule that the accent falls on the long vowel nearest the end; if there is no long vowel the accent comes on the first syllable of the word.

onō', mūsū', bonō', tsibī', bukū', minī', kōwō', tolī', pitī', sūmī', hawī', yosō', makō', kayī', konō', hemī', sukū', bosō', pokō', etc.

tsī'tsi, nā'na, tsā'wa, kū'yi, mā'wa, wē'pa, ū'yi, etc.

konō'ko, posā'la, olē'li, pekū'ni, palā'li, awā'ni, homō'ni, homō'kō, etc.

pō'tani, yā'mani, helī'eni, hī'pinak, hī'maduk, amē'lulu, etc.

hī'ni, sī'mi, e'ni, yī'mi, hō'ti, mō'de, wī'sla, tōli, etc.

tsī'laka, si'mpani, pa'ndaka, la'klakpe, ka'nanak (cf. kanāi'na in another dialect), polo'loko, pa'kpaka.

e'lalakno, tsi'statatkō

There are, however, some exceptions:

sede', paka', kosi', kula', heme', lüli', böbö', popo'
pā'nō, kī'wī, hī'lō
wīli'lī
yū'tdūli, olo'lokō, witū'mtūmi

Compound nouns tend to accent the first member, irrespective of long syllables in the second:

mo'm-pānō, sü'm-bukū, ba't-sāwi, toli'-wakā, hi'nim-butū, ma'idūm-bomō

Personal and demonstrative pronouns follow the same rule as nouns.

nisā'm, nisē'm, nisā', nisē'ki, amā'm, amā'kan, ūnī'nan
mi'nki, mi'nsōm, mō'yem, mi'ntseki, mō'seki, mō'im

Verbs are more difficult to judge, because they appear to contain few long syllables. At least, few long vowels are marked in the available data. The accent therefore recedes; but its most frequent place varies between the first and second syllables according to factors that are obscure.

ha'ndakdaudom, i'notimoto, te'lapsito, ba'poldon, ba'yaldau, sü'dakdau, wa'daston, la'ptikinnuwas, tō'sbokiteam.

hī'tulsipdom, ō'puldōn, sō'wodom, bō'dakdaudom, bū'dutmin, hū'mitdom, sī'dakdau, wū'suwalakano, mē'datotsoia, bā'kasdau, hē'appinpintoia, wē'yedonkōkan.

hala'pnodom, sōhu'nbōktsoia, böle'kwodoidom, bopo'ldon, böyō'ikin, batsa'psito, hūtu'lto, hūde'ktodom, siwa'waitoweten, sika'lamakōkan, wa'a'pdau, kapwi'limdoinodom, öko'iyahaka'ankano, wiwo'doinatseno.

hayō'sip, sikē'yodom, sūtā'nodom, yeā'ssito, wōwō'hanodom, wodā'kas, önō'lutmakas, öyē'madom.

yū'lūpsito, yō'nōn, wi'āspin, witā'tāmotopi, sō'wōkitsoia, wō'tanū.
lōkdiknōmā'kas, tusbōtā'dom.

There is no trace of a difference between classes of suffixes, as in Yokuts, some drawing the accent toward themselves, others allowing it to recede. It is however clear that diphthongs count as single and normally short sounds; which is as in Yokuts. Vocalic mutations differ from those of Yokuts. They do not seem to occur according to any system of true *ablaut*; and they are confined mostly to verbs, which are largely built up from monosyllabic stems. So far as can be judged at present, accent is not connected with vocalic changes in Maidu. The one factor that is rather certainly associated with stress is vowel quantity.

If Wintun has *ablaut*, it has remained concealed. The process is, therefore, certainly less important than in Yokuts and Maidu. The recessive accent is also no longer traceable. Final accents appear in

both Northern and Southern dialects. As such accents are rare in Penutian they would seem to be of secondary origin in Wintun. This is confirmed by the fact that within Northern Wintun the accent of some words differs according to local subdialect.

Hay Fork of Trinity River

so'no
ta'hal
ku'ril (*rib*)
olpu'ris (*breath*)

Upper Sacramento River

Lini'k
daha'l
tsuri'l
o'lporu

The speech of Hay Fork thus seems more inclined to preserve the ancient Penutian accent, that of the Upper Sacramento readier to shift it toward the ends of words. In line with this difference is the fact that antepenultimate accent is at best rare, perhaps wholly lacking, in the Upper Sacramento dialect, very common in Hay Fork.

Southeastern Wintun shows words accented on the last, second, and third from the last syllable. As in the North, the determining principle remains obscure.

A few Wintun words bear the accent on the first of four or five syllables, as Hay Fork su'getopi, *fish net*, but these are probably derivatives or compounds.

Miwok data are scant. It is certain that antepenultimate accent is common. But as vowel quantities have not been recorded systematically, and the slight indications of vocalic mutation are too vague to be beyond doubt, the factors determinative of accent remain more obscure than in Yokuts and Maidu. Suffixes of case, and perhaps others, do not affect the accent of stems. This rule may account for some instances of accent on the first of four syllables: ka'wulu-to, hu'mele-tki, la'pisay-u. Penultimate stress is not unknown in words of three syllables: ali'ni, ahe'li, epla'li, oti'ko, na'a'tea. In all such words the accented syllable seems to contain a long vowel. On the other hand, whenever the accent falls on the fourth syllable from the last all the following vowels seem to be short: ke'nnekakü, tolo''teakü. The probability is therefore rather strong that the accent of Miwok, like that of Maidu, is determined by vowel quantities.

The lengthened consonants characteristic of most Miwok dialects are certainly associated with accent. They do not seem to appear invariably after each stressed vowel, but when they occur it is only in that position: wa'lli, ka'nni, awa'nnata, ese'llutki.

In Costanoan, stems of two syllables prevail. But antepenultimate accent occurs, most formative, locative, and modo-temporal suffixes

being added to the root without causing a shift of accent. In fact, there is no certain case of any Costanoan word being accented other than on the first syllable of its stem.

Much more attention must be bestowed than has been usual heretofore before the history of accent and of the factors related to it in the Penutian languages becomes clear. In summary, the following may however be suggested.

Accent seems basically to be recessive, falling on the penult if this or the final syllable is long, on the antepenult if the last three syllables are short. Miwok and Maidu have carried this principle to the point of letting the accent recede even farther, if no long vowels follow. On the other hand, Maidu sometimes draws the stress to the final syllable itself, if this is long. Wintun also has come to know final accent, but on short vowels, so that the development in this language is likely to be distinct from the Maidu development. Yokuts has associated its accent deeply with its *ablaut* system. Miwok has lengthened many consonants under the influence of stress.

SUFFIXES

Various word-forming suffixes are clearly indicated by the comparative lists, in which they have been designated by preposed hyphens. Many of these endings have been determined previously in studies of individual dialects, but are confirmed here, and several appear to be common to two or more of the five languages. Maidu, which favors short stems, shows by far the fewest of these endings; but Costanoan, whose words are also compact, and which with the possible exception of Yokuts is grammatically the least synthetic language of the family, is well provided with word-forming suffixes.

-s, Yokuts -c. This is the most frequent of Penutian suffixes, common to all languages except Maidu. A few instances follow; there are numerous other stems in the list on which the ending appears in one language only.

Mw and C: 2

Y and C: 6, 26, 31, 61

W and C: 113

W and Mw: 47

W and Y: 72, 109, 128

Miwok -su, -hu, 14, 28, 80, may be the same suffix.

Yokuts -a'l, -il, -l, -c-ul, 8, 14, 25, 34, 59, 145. Wintun -l, 74, 81, may be the same.

Costanoan -x (F, J) and -tc (J, CL, CR), usually appear dialectically on the same stems: 10, 13, 40, 73. Individual Yokuts dialects occasionally show an -x or -hi which may be either a suffix or a phonetic increment: 32, 37, 41, 42.

-m is frequent in Santa Clara Costanoan: 21, 31, 37, 41, 57, 59, 61, 65, and occurs in Monterey: 114, 117. It is the nominative or absolute suffix of nouns in Maidu. Whether the *-m* in Maidu, 19, 131, is this or a true etymological suffix is not clear.

-n, Yokuts: 33, 34, 46, 132, 133, perhaps 82.

-min, *-mini*, is a Costanoan noun-forming suffix, common on adjective and verbal stems: 132, 135. It occurs also on several animal names: 114, 117, 123, which other languages indicate to be probably substantival. All of these are San Juan Bautista, but in 114 F, CL, and CR show the same ending. It is tempting but seems hazardous to connect Wintun *-men*, *-mel*, of 72.

A connection between Yokuts *-t* of 103, Miwok *-ti* of 110, Costanoan *-t* (B) of 110, *-te* (F) of 131, and *-tei* (B) of 73 is possible, but the randomness of occurrence compels serious reserve in acceptance. Southern Wintun has *-ta* on names of persons in 1, 4, 6 (N also), 56, and *-tu*, probably the same, in 55. A connection with Southern Wintun *-ta* on numerals in the count is problematical.

Costanoan *-wis* and *-ist*, 131, 132, 133, 135, are previously known.

Costanoan has *-mak*, *-emk*, *-ma* on several words denoting persons: 4, 6, 7. This seems essentially a plural suffix. The same may be said of Miwok *-k*, *-ko* in 1; Southern Maidu *-k* on the same stem may be connected. But Wintun *-k* (SE) in 85 and 94 is probably distinct, since it occurs on inanimate nouns. The same is true of Miwok (CO, L) *-k* in 30.

Southern Miwok *-tki*, *-tcki*, in 9, 10, seems to be a diminutive.

Besides Wintun *-ta*, *-t*, there are two endings of numerals that may be either suffixes or endings standardized under the influence of the analogizing that must tend to be powerful in any series of words habitually repeated in a fixed sequence: Miwok (and sometimes Maidu) *-ka*, *-ko*, *-ke*, and Costanoan, Yokuts and Wintun *-n*, *-l*, *-L*.

MORPHOLOGY

Vowel Mutations

Yokuts possesses as one of its most distinctive features an intricate and subtle but regular system of *ablaut* mutations of vowels,³⁰ previously mentioned as connected with accentuation. Maidu is also characterized by rather abundant vocalic stem changes, though the probably complex rules under which these take place have not yet become clear.³¹ Miwok shows probable traces of the same process.³² That it has not yet appeared in Costanoan and Wintun may be due to its absence or to our imperfect knowledge of them. As vowel mutations thus occur in at least three branches of the Penutian family, they may be accepted as representative of its original state. Judging by their character in Yokuts, they are as "inflectional" in type as those of Indo-Germanic or Semitic.

³⁰ *Ibid.*, II, 173-179, 190-191, 208-214, 230-231, 235-236, 289-292, etc., 1907.

³¹ *Bur. Am. Ethn.*, Bull. XL, 686-687, 695, 699, etc., 1911.

³² Present series, IX, 288, 1911.

The Verb and Its Affixes

Suffixes are the only affixes found in Yokuts, Miwok, Costanoan, and Wintun. Maidu superficially presents a marked contrast with a liberal array of prefixes. It proves, however, that these are all of a single class, namely, instrumental modifiers of the verb. A number of them, moreover, are apparently recent in origin as prefixes, since they can themselves be used as verb stems.³³ It is therefore likely that these elements will prove to be or originally to have been the first members of binary compound verbs. Of those that do not occur as separate stems, two show a clear relationship in form to the independent nouns denoting the corresponding part of the body, a fact that stamps them as evidently until recently noun stems used in composition with verbs, and indicates that the remaining elements of the same type may have originated in a similar manner.³⁴ It is also a fact that Maidu is in contact with Washo and Achomawi-Atsugewi, both prefixing languages and both possessing elements of this very kind, so that their development in this tongue may have been stimulated by the influence of contact. At any rate, it is clear that Penutian as a whole may be set down as having been originally, and still being distinctively, suffixing only.

Maidu is also exceptional, in the light of our present knowledge, in the possession of another class of affixes to verbs, though these follow the general rule of the family in being suffixes: elements denoting spatial location or direction of motion.³⁵ The same tendency toward greater concreteness of expression that caused the growth of the instrumental prefixes, may be responsible for the development of this class of suffixes, which were again stimulated, perhaps, by the influence of foreign but adjacent idioms.

The Penutian verb is, therefore, apart from its stem mutations and personal endings, simple: its other modifications consist only of the addition of a series of suffixes which may be described as temporal, modal, and formative. By the last term are meant causatives, inchoatives, desideratives, and similar elements that in the so-called inflectional languages would probably be described as indicative of conjugational classes. All the verbal suffixes of the group are accordingly

³³ Bur. Am. Ethn., Bull. xl, 693-698, 1911.

³⁴ *Ibid.*, p. 695.

³⁵ Bur. Am. Ethn., Bull. xl, 700, 1911. Not a trace of such elements occurs in Yokuts, nor according to the material of Arroyo de la Cuesta, who knew the language well, in Costanoan. The authors looked for them in Wintun and Miwok, so that in spite of the fragmentary knowledge of these languages, their absence from them can not be charged to mere oversight.

comparatively abstract and formal. The greatest departure from the average is displayed by Maidu, which not only seems to possess the largest number of suffixes, but to embrace those of most concrete and adverbial force, such as several denoting "nearly," "completely," and "only."

The tense suffixes even of similar dialects of any one of the five Penutian languages seem to be rather variable.³⁶ Close similarities between the languages themselves can therefore not be expected, either for the temporal or the modal and formative elements. Nevertheless, enough suffixes can be found to connect all the languages (table 3).

Some of the forms given as parallel in this table may resemble each other only superficially and not genetically; but enough remain to establish a fundamental identity of apparatus. The continuative has been included not because the endings are similar but because in Maidu and Yokuts this tense is independently formed from distinct stems but in the same manner: by the verb meaning to "be" or "live." The passive forms are perhaps also not related; but a true passive, expressed by a simple suffix, is such a rarity in the wide field of American languages that its occurrence in four of the five tongues examined should be enough to carry a heavy presumption of their unity. It is significant that it is again Maidu which is exceptional.

The preterite tense elements apparently distinguish, in most of the languages, not only completed from progressing action, but also different degrees of remoteness of time.

The well defined and limited range of meaning of these verb-suffixes as a class is notable, and varies remarkably little in any of the five languages. In addition to the elements included in the table, there have been found, in any or all languages of the group, only inceptive, benefactive, excellentive, interrogative, imperative, subjunctive ("when, while after"), present, future, and participial elements.

Pronominal Elements

In view of the fact that four of the five languages under consideration have previously been described as pronominally non-incorporative, it may surprise when the authors now state their belief that the Penutian verb was originally provided with personal endings. Miwok has not only a full but a variegated array of pronominal verb-suffixes;³⁷

³⁶ Compare, for Yokuts, present series of publications, II, 282, 337-338, 1907; for Miwok, IX, 309-311, 1911; for Costanoan, II, 72-74, 1904, and IX, 252-253, 1910.

³⁷ Present series, IX, 283-286, 297-306, 1911.

TABLE 3
PENTTIAN VERB SUFFIXES

	<i>Yokuts</i> (T, V)	<i>Miwok</i> (S, C)	<i>Costanoan</i> (B)	<i>Wintun</i> (N)	<i>Maidu</i> (NE)
Causative	-la, -da	-ne, -nuku	-si		-ti, -lut
Frequentative	-ta				-to
Continuative	-yo ["to be"]				-bûs ["to be"]
Desiderative	-atcin	-caiku, -kee			-no, -ye
Purposive [go to]		-ukna	-inyi		—
Intransitive	-in	-ue, -ñe			
Passive	-it	-si, -pa	-stap, -stapsc, -gnis	-hi	
Negative		-ewa, -cewa	-wit		-men
Negative		-aũu		-mina	-pe
Hortative				-kila	-helu
Conditional	-al				-nats
Potential		-ni, -ani			-us
Reflexive, Reciprocal	-wis	-posa, -po	-pu, -mu	-pura	-as, -has
Preterite	-ji, -ac	-se, -su	-s	-ise, -isu	-yak
Preterite		-ke, -ka, -kesú, sak	-kun, -skun		
Preterite	-an, -ahin	-na-ka	-n, -ku-n		
Agent		-tu	-xte		
Agent		-pe, -api			-pe
Noun formative	-ini	-s	-mini	-s	

and in Costanoan,³⁸ Wintun,³⁹ and Maidu⁴⁰ some fragments survive. It is true that the complex Sierra Miwok pronominal endings, which are altered for tense, may easily be a special development of these dialects. But the variety of the few suffixes in Costanoan, Wintun, and Maidu, and their lack of obvious relation to the independent pronouns in those languages, give them the appearance of remnants of a once larger array of forms, rather than the character of rudimentary beginnings of a conjugation evolving from stems through enclitics to suffixes; and this makes it almost certain that at least part of the Miwok pronominal suffix formation is old. The course of development of Penutian, in respect to this feature, is therefore much more probably toward the analytical stage than toward the synthetical. Yokuts, whose pronouns are all distinct, though accentless, is accordingly the exceptional member of the family in the present particular, though to all practical purposes Costanoan is equally isolating.

The Costanoan and Miwok suffixes indicate that the original pronominal suffixes were objective as well as subjective.⁴¹

As regards the possessive pronominal relation, the former status of the group is not clear. In all of the languages except Miwok the possessive pronoun is now invariably a separate word,⁴² and its expression by suffixes in Miwok may be nothing more than a special and recent formation by analogy with the abundant pronominal endings of verbs.

In the independent pronoun the distinction between the inclusive and exclusive first personal plural has not yet been reported for Costanoan or Maidu, but is certainly found in the three other languages, and therefore seems normal. A pronominal dual is well marked in Yokuts, Wintun, and Maidu, in fact gives some indication of being basic to the plural in Maidu⁴³ and Yokuts.⁴⁴ For Miwok a dual is at least not yet disproved, and may in some forms also underlie the plural.⁴⁵ The elements indicative of number in the pronoun differ

³⁸ *Ibid.*, II, 72-73, 1904; IX, 252-253, 1911.

³⁹ Putnam Anniversary Volume, p. 463, 1909.

⁴⁰ Bur. Am. Ethn., Bull. XL, 719, 1909.

⁴¹ Compare the passages last cited.

⁴² A few Yokuts terms of relationship commence with a syllable in *n-* which appears to be a crystallized pronominal element of the first person. Compare this series, XII, 352, 353, 1917.

⁴³ Bur. Am. Ethn., Bull. XL, 709-711, 1911. The same seems to be true of Wintun: compare dual *nelit*, *malit*, *pulit*, plural *nelet*, *malet*, *pulet*, with Southern Maidu dual *nas*, *mam*, *mōsam*, plural *nes*, *mem*, *mōsem*.

⁴⁴ Present series, II, 223, 1907.

⁴⁵ *Ibid.*, IX, 303, 1911.

greatly in the several languages, evidently because the number elements have been combined with case endings and then distorted by strong analogizing influences.

Number and Case in Nouns

The noun is marked in three of the five languages by a plural suffix for at least animate substantives; in all five, except for partial deviations in Maidu and Costanoan, by an objective and a possessive case; and in all five except Wintun by about four or five other instrumental and local cases, which both by their form, and through their not being accompanied by an indefinitely larger number of locative endings of concrete meaning shading into semi-independent postpositions, indicate that they are true cases and not adverbial postpositions. This last feature is particularly important, and is only one more instance of the remarkable similarity of inner character and tendency which this family bears to Indo-Germanic.

The number and case suffixes are given in table 4, and will be seen to be rather similar. Wintun and Maidu have lost the plural suffix. Maidu is also without an objective, replacing it by a subjective, whose sign, *-m*, is the same as the objective in Wintun. As the Maidu subjective is a sign of the intransitive as well as of the transitive agent, and is usually given with nouns standing alone, it really corresponds closely to the peculiar nominative of Indo-Germanic. The possessive is originally *-n*. Maidu has replaced this by *-ki*, and Costanoan has lost the case in both noun and pronoun. The instrumental occurs in all the languages, and is not only similar in all, but apparently of importance. In Wintun it is the only non-syntactical case remaining. A general locative is marked by *t* followed by a vowel: Yokuts *-u* evidently represents former *-tu*. An ablative and terminative are formed in Yokuts and Maidu by an *n*-, in Miwok and Costanoan by an *m*- element. In Maidu the two are similar in form; in Miwok and Costanoan, either identical, or, when formally distinguished, not sharply separated in meaning. It is therefore likely that these two cases are derived from a common base or are originally only one, the distinction between this element and the locative being one of motion as distinct from position. A comitative in *k* also seems a common heirloom of the family, though not universal. One or two instances of additional reported cases in San Juan Bautista Costanoan,⁴⁶ such

⁴⁶ *Ibid.*, ix, 252, 1910.

TABLE 4

PENUTIAN NUMBER AND CASE SUFFIXES

	<i>Yokuts</i> (T)	<i>Miwok</i> (N)	<i>Costanoan</i> (B)	<i>Wintun</i> (N)	<i>Maidu</i> (NE)
Plural	-i, -a	-ko, -k, -ya, -ti	-kma, -mak, -ma	—	—
Objective	-a, -i	-i, -te	-e, -ne, -se, -s	-m	-m (nominative)
Possessive	-in	-n, -ñ	—	-u	-ki
Instrumental	-ni, -ñi	-su, -s	-yum, -sum	-in	-ni
Locative	-u	-to, -t	-ta, -tak, -tka	—	-di
Ablative	-nit	-m, -mō, -am	-m, -me, -mo	{	-nan
Abl. and Term.	—	-kō, -kōta, -li	-tsu		-na, -nak
Terminative	—			—	-kan
Comitative	—			—	

as -tum, *from*, and -was, *for, to*, must, until further confirmation or increased knowledge, be considered special and secondary dialectic developments.

The attributive adjective is essentially a noun in Yokuts,⁴⁷ Costanoan,⁴⁸ and Maidu,⁴⁹ and therefore presumably in the entire family.

A peculiar construction, by which a participial or subordinate clause is expressed by the verb converted into a noun with attached locative or possessive case-suffix and its pronoun in the possessive instead of subjective form—"at my eating" for "when I ate"—has been found in Maidu,⁵⁰ Yokuts,⁵¹ and Miwok.⁵²

Form and Use of Stems

The occurrence of radically different stems to distinguish singular and plural in the verb, a feature marking Athabasean, Shoshonean, and Hokan, is either very little developed or, barring insignificant exceptions, wanting from the five languages under consideration.⁵³

The normal type of verb stem is not certain, but appears likely to have been bisyllabic or triconsonantal. This is clearly the Yokuts, Miwok, and Costanoan tendency.⁵⁴ Wintun has at least many disyllabic stems, leaving Maidu alone with a distinct preponderance of monosyllabic ones. In nouns, triconsonantal stems are distinctly the type in Yokuts and common in the other languages. Bivocalic nouns are still more frequent. Monosyllabic nouns are, broadly speaking,

⁴⁷ *Ibid.*, II, 229, 1907.

⁴⁸ *Ibid.*, II, 73, 1904.

⁴⁹ Bur. Am. Ethn., Bull. XL, 716, 1911.

⁵⁰ *Ibid.*, XL, 691, 1911. The case ending is lacking, unless it be that the suffix -pem contains the nominative.

⁵¹ Present series, II, 195, 1907.

⁵² *Ibid.*, IX, 281, 1911.

⁵³ *Ibid.*, II, 204, 1907.

⁵⁴ A count has been made of the verbs given in the following sources: Yokuts, this series, II, 246-254, 1907; Costanoan, *ibid.*, XI, 441-447, 454-460, 1916 (asterisked forms have been omitted, and suffixes marked by a hyphen deducted); Miwok, IX, 288-289, 1911. These classify as follows:

	Consonants in stem			Percentages		
	1	2	3	1	2	3
Stems with initial vowel.						
Yokuts	12	8	1	57	43	
Costanoan	46	31	5	56	34	
Miwok	9	3		75	25	
Stems with initial consonant.						
Yokuts	10	108	44	6	67	27
Costanoan	5	98	47	3	66	31
Miwok	2	48	35	2	57	41

The consonantal content of stems clearly runs along very similar lines in the three languages. The divergence of Maidu is therefore almost certainly secondary.

the exception, even after formative suffixes have been discounted. Their largest array occurs in Monterey Costanoan and Southern Maidu, which dialects have clearly inclined to reduction.

No Penutian language tolerates initial combinations of consonants; nor, except in some Costanoan dialects given to reduction of forms, are any final combinations found.

Composition into one word of independent noun or verb stems is certainly as good as wanting from Yokuts, and its failure to appear conspicuously in the Miwok or Costanoan material available argues that it cannot be a very important factor there. Wintun is yet too little known to be safe to count. Maidu is therefore again left as exceptional. It must be observed, however, that Maidu noun-compounds are often connected by an element *-m*, which appears to be the nominative ending of the first or determining noun.⁵⁵ This shows a syntactical rather than an etymological relation to exist between the two elements, and probably makes of the complex not so much a true compound as a collocation. Verbal compounds also appear in Maidu; but as these are related to the exceptional instrumental prefixes of that language, in fact, cause or constitute part of them,⁵⁶ they cannot be taken as representative of the normal Penutian type.

Etymological derivation of nouns from simpler stems of suffixes has been discussed above. The number of such suffixes appears to be rather limited,⁵⁷ the majority to be attached to only a few stems, and the meaning of almost none to be concrete or specific, in all the languages.

These similarities of structure go far to corroborate the lexical and phonetic resemblances previously discussed.

GEOGRAPHICAL ORGANIZATION

The territory of the Penutian family coincides very closely with that of the drainage of the great valley of California, that is, with the area watered by the Sacramento and San Joaquin-Kern rivers and their affluents. This large region finds its sole outlet to the ocean through the Golden Gate; and it is appropriate that two languages of the family were spoken on opposite sides of this famous strait. On the east and south, Washo, Shoshonean, and Chumash bodies have here and there edged their way over the crest of the mountains to

⁵⁵ Bur. Am. Ethn., Bull. XL, 686, 688, 692, 1911.

⁵⁶ *Ibid.*, p. 708.

⁵⁷ Present series, II, 339, 1907; IX, 311-313, 1911; Bur. Am. Ethn., Bull. XL, 691-693, 1911.

the headwaters of streams flowing into the San Joaquin. In the extreme north, the uppermost Sacramento and its longer affluent the Pit were in Yana and Shastan possession. In the middle Sacramento region one Pomo division had spilled over the mountains from the west into the valley. But the Penutian peoples compensated elsewhere for these infringements of their natural territory. The Maidu had penetrated east of the Sierra into Great Basin drainage. Toward the west, the Wintun extended well down on the Trinity and adjacent rivers that flow through the Coast Ranges into the sea. And opposite

Fig. 1

the lower San Joaquin the Costanoan peoples had entirely left this interior stream, and were congregated about San Francisco Bay and even fronted the ocean to the south. Any deficiency in one part was therefore made up elsewhere, and the net result in territory balanced almost exactly with the area of the great central valley.

Schematically, the territorial distribution of the five members of the Penutian family may be shown as in figure 1. The radiation from a central point, coinciding with the delta protruded into San Francisco Bay by the Sacramento and San Joaquin rivers, is striking. The Uti division of the family is represented by the horseshoe curve. The ends of this curve, while geographically not far apart, represent linguistic extremes.⁵⁸ The vertical part of the scheme denotes the

⁵⁸ *Ibid.*, ix, 308, 1911.

Pen part of the family; and in this connection it is remarkable that had the figure been carried out to represent the internal organization of any of the five members, the line representing Yokuts would have had to be split to fork downward, one arm standing for the Valley and the other for the Foothill group of dialects of this language.⁵⁹ The divergence from the central point of the family can therefore be traced even in details; and this radiation exists not merely in the geometrically simplified scheme of the figure, but is almost as striking on an actual map of the state.

It can hardly be assumed, however, that the junction of the two great rivers with the bay is the historical point of origin from which the entire family has gradually diverged by migration. The comparatively specialized habitat afforded by this region militates against such a view. But that this delta tract is the keystone of the arch, as we know the Penutian family in historical times, cannot be doubted. As the best lexical information and almost all of the grammatical knowledge about the family comes from dialects at the ends of the five diverging lines, it is certain that such data as the future may bring concerning the more centrally situated forms of Penutian speech will not only corroborate and strengthen the conclusion of genetic relationship but will greatly enlighten the organization of the whole family.⁶⁰

HISTORICAL INTERRELATIONS OF THE PENUTIAN LANGUAGES

The 171 cognate stems that have been considered classify as follows:

Pen branch

Wintun and Maidu	8	
Wintun and Yokuts	9	
Maidu and Yokuts	11	28

Uti branch

Miwok and Costanoan	9	9
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Pen and Uti branches

Wintun and Costanoan	7	
Maidu and Costanoan	0	
Yokuts and Costanoan	5	
The same three and Miwok, aggregate	11	23

Total stems common to <i>two</i> languages		60
Wintun, Maidu, and Yokuts	23	
Wintun and both Uti languages	5	
Maidu and both Uti languages	4	

⁵⁹ *Ibid.*, II, 315, 1907.

⁶⁰ A clue in this direction is already furnished by the local or tribal ending *-amii*, discussed in present series, VI, 379, 1908.

Yokuts and both Uti languages	9	18	
Two Pen and one Uti language, aggregate of six combinations		13	
Total stems common to <i>three</i> languages			54
All five languages except Wintun	3		
All five languages except Maidu	5		
All five languages except Yokuts	6		
All five languages except Miwok	6		
All five languages except Costanoan	14		
Total stems common to <i>four</i> languages			34
Total stems common to <i>five</i> languages			23
Total			171

The number of stems among the 171 held in common by each possible pair of the five languages is the following:

	<i>Wintun</i>	<i>Maidu</i>	<i>Yokuts</i>	<i>Miwok</i>	<i>Costanoan</i>	<i>Total</i>
Wintun	86	84	64	55	289	
Maidu	86	84	58	44	272	
Yokuts	84	84	64	54	286	
Miwok	64	58	64	65	251	
Costanoan	55	44	54	65	218	

Less representative but more accentuated results appear when stems common to all or nearly all languages are omitted and only those are tabulated which occur in two or three languages.

	<i>Wintun</i>	<i>Maidu</i>	<i>Yokuts</i>	<i>Miwok</i>	<i>Costanoan</i>	<i>Total</i>
Wintun	37	36	16	15		104
Maidu	37		38	12	6	93
Yokuts	36	38		19	17	110
Miwok	16	12	19		28	75
Costanoan	15	6	17	28		66

The inferences that follow from these figures are:

1. The three Pen languages have more stems in common whose meaning remains substantially identical than the two Uti languages.

2. Of the Uti tongues, Miwok has substantially as many stems occurring also in each of the three Pen languages as in its sister Uti language. For Costanoan the corresponding proportion is somewhat lower.

3. Costanoan is clearly the most divergent member of the family in the number of its identifiable stems retaining their original meaning. Being an extinct language, the data on it are perhaps the scantiest, but its specialization is so marked that deficiency of material alone seems insufficient to account for its status.

4. Of the three Pen languages Maidu is the most divergent in the number of stems retained in common with the remainder of the family. This accords with its special proclivities toward assimilation, metathesis, reduction of the final syllable, comparative rarity of participation in regular sound shifts, and several structural peculiarities, such as the use of instrumental prefixes.

5. The specialization of Costanoan in the one branch and of Maidu in the other is reflected by their having by far the smallest number of stems in common.

6. As regards stocks of words, original Penutian is best preserved in Wintun and Yokuts.

7. On the same etymological basis, the three Pen languages are equally differentiated from one another, even though Wintun and Maidu lie in broad contact whereas Yokuts barely touches the former on the map and is separated from the latter by a considerable belt of Miwok territory. These facts suggest the Miwok of the interior as comparatively recent intruders between the Maidu and Yokuts. Whether the entire block of interior Miwok—North, Central, and South Sierra, and Plains—or the Plains division alone, is to be regarded as participating in this movement, is not clear. It is possible that the block moved as a unit from the coast or valley eastward into the Sierra Nevada, leaving the Yokuts and Maidu in contact in the valley, and that subsequently the modern Plains division flowed back into the valley and barred the Yokuts from the Maidu.

OTHER FAMILIES

HOKAN AND "ISKOMAN"

The first apparent kernel of the group of stocks which were subsequently named the Hokan family consisted of five languages in northern California: Karok, Chimariko, Shastan, Pomo and Yana.⁶¹ The adhesion of the latter was then advanced tentatively. Its lexical resemblances, especially to Pomo, were strong and numerous; but it differed from the remaining tongues of the group in certain structural features, notably the complete lack of all prefixes. A special examination of its elements, however, transcending the rather restricted data contained in the original vocabularies, soon fully convinced the authors of its appurtenance to the Hokan group—a belief in which they were supported by Dr. E. Sapir, the chief recorder of extant Yana material and the outstanding authority on the idiom.

Esselen and Yuman also fell clearly into the same group as soon as the data which they had contributed to the vocabularies were reëxamined in the new light of suggested relationship instead of the necessarily somewhat mechanical manner of the first comparisons.⁶² This brought the number of former stocks in the new family up to seven.

Within a year or two one of the authors extended the field of comparison beyond California. Seri in northern and Chontal or Tequistlatecan in southern Mexico were linked with Yuman, and at least in some degree directly with the other Hokan languages.⁶³ This brought the number of consolidated stocks up to nine.

The evidence submitted by the writers as to the unity of these languages is admitted by them to be but slender. Yet they feel themselves absolved from the obligation of presenting further formal proofs through the publication by Dr. Sapir of a recent essay devoted nominally to the determination of the position of Yana in the Hokan stock,⁶⁴ but in effect rendering as full a proof of the actuality of the family as could be demanded.

Dr. Sapir examines nearly 200 stems and elements which Yana shares with the other Hokan languages. Most of these stems are also

⁶¹ *Science*, n. s., xxxvii, 225, 647.

⁶² *Am. Anthr.*, n. s., xv, 647-655, 1913.

⁶³ *Present series*, xi, 279-290, 1915.

⁶⁴ *Ibid.*, xiii, 1-34, 1917.

common to two or several of these languages among themselves. The net result is therefore the demonstration of a mass of evidence on the interrelation of the Hokan languages as such. It merely happens that the starting point of the presentation is Yana.

But the list of lexical equivalences is the least weighty content of Dr. Sapir's monograph. In passing, as it were, he formulates phonetic equivalence, indicates the course of the shifts, analyzes forms in one language by the touchstone of forms in others, throws light on morphological developments, and is even able to reconstruct some hypothetical forms of the original undivided Hokan stock.

This is an achievement much greater than the present writers had set themselves in the same premises, except, perhaps, as an ultimate goal. They therefore gratefully hold themselves relieved of the task of further demonstrating the reality of the Hokan family as it was at first proposed by them.

However, the tale is not yet full. From the first it was apparent that Chumash and Salinan possessed more numerous similarities with each other than either possessed with any other language. In their second preliminary notice the authors accordingly set up an "Iskoman" group or family.⁶⁵ Some of the data seemed to "lend themselves to the hypothesis of a connection between Hokan and Iskoman," although discussion of such a possible relationship appeared premature then.

Subsequently, however, Mr. J. P. Harrington expressed his conviction of the kinship of Chumash and Yuman, and thereby implicitly of Iskoman and Hokan, if these groups were valid.⁶⁶ And in his Yana paper Dr. Sapir treats Chumash and Salinan outright as if they were Hokan, and with results substantially equal to his results from the other languages of the group.

The tentative Iskoman group may therefore be regarded as superseded and merged in Hokan.

Washo

One other language in the Californian region seems destined to inclusion in the Hokan family: Washo. In the original comparative tables this tongue was credited with remarkably few parallels to any other. Superficial examination indeed reveals very few similarities between it and Hokan tongues. Dr. Sapir, however, during the prepa-

⁶⁵ *Am. Anthr.*, n. s., xv, 647-655, 1913.

⁶⁶ *Ibid.*, xv, 716, 1913.

ration of his Yana-Hokan paper, communicated to the writers a number of resemblances of Washo to Yana and other Hokan languages; and more recently both he and Mr. Harrington, working independently, announced⁶⁷ their discovery of the relationship of Washo to Hokan and to Chumash, respectively.

It may be added that a morphological peculiarity was long ago noted⁶⁸ as common to Washo, Salinan, and the San Luis Obispo dialect of Chumash: the prefixion of a *t-* or *d-* element to most nouns in their absolute form, this element being often lost when the possessive pronominal elements are joined to the stem. At the time this resemblance was observed it seemed nothing more than a curious coincidence. But structural and lexical resemblances have proved to go so closely hand in hand whenever kinship has been established in this region, that this one trait, even if it were not reinforced by a number of more generic similarities in grammar, would go far to inculcate a suspicion of original connection.

The authors' Hokan material, and that assembled by Dr. Sapir,⁶⁹ have therefore been gone over again and compared with the available Washo data,⁷⁰ which unfortunately are very incomplete lexically and far from satisfactory as to phonetic quality and rendering. The outcome is about sixty parallels of greater or less validity. This is not a wholly convincing showing. But the general plan of Washo structure is so similar⁷¹ to that of Hokan that material resemblances weigh more heavily.

Washo, -koi, *father*; Chum., qo; Sal., ek (vocative); Yahi,⁷² gal-; Kar., aka; Chim., itci-la-i; Moh., -akut- (*father of a man*).

Washo, -la, *mother*; perhaps *ex-na* or *-ta*; cf. Chum., -tuq; Moh., -tai-; Dieg., etel; Kar., tat; Pomo, c, tce-de, E, te; Yahi -n-; Ach., datyi, -ani; Sha., ani, atxi.

Washo, at'u, *older brother*; Ach., atu-n (*younger brother*).

Washo, -peyu, *younger brother*; Chum., -pe (*older brother*); Ach., w-abā-ui (*older brother*); Ats., pupa (*older brother*); Sha., apo (*older or younger brother*); Sal., pe (*older sister*); Pomo, c, mex (*older brother*); Ess., mi-ts ("brother").

Washo, -isa, *older sister*; Chum., -is (*younger brother and sister*); Ach., abis (*older sister*); perhaps also Ess., i-tei (*ex it-tei ex iste?*), "*sister*"; Sha., atsi, ateu, *older or younger sister*; Dieg., etcun, *older sister*.

⁶⁷ *Ibid.*, XIX, 449-450 and 154, 1917.

⁶⁸ Present series, II, 47, 1904.

⁶⁹ *Ibid.*, XIII, 1-34, 1917.

⁷⁰ *Ibid.*, IV, 251-317, 1907; besides an unpublished vocabulary recorded by R. B. Dixon.

⁷¹ For instance, the noun without cases but with numerous local suffixes and with possessive prefixes; the verb with pronominal and instrumental prefixes, local and modo-temporal suffixes; verb stems frequently different for singular and plural; composition in abundance.

⁷² The southernmost dialect of Yana.

Washo, -bapa, perhaps -baba or -papa, *father's father*; Ach., Ats., abu-n, apu-n; Dieg., ini-pa-u; Moh., -apa-u; Pomo, c, ba-ts-e. Sal., ama', and Ess., me-tce, "*grandfather*," may be connected with this stem or the following.

Washo, -ama, *father's mother*; Ach., Ats., amu-n; Sha., amo; Dieg., ini-ma-u; Moh., -ama-u; Pomo, c, ma-ts-e; Chum., -ma (*father's parent*).

Washo, -gu, *mother's mother*; Ach., ateu-n; Ats., teu-un; Sha., atci-di; Yahi, 'a'dju-; S. Dieg., in-kus; Moh., -aka-u; Pomo, c, ka-ts-e. Compare also Kar., gīt, kīt, *mother's mother*, gūt, kūt, *mother's father*.

Washo, -el-el, *mothers' father*; Chum., -ne (*mother's parent*); Sal., nene' (*mother's parent*).

Washo, -ta, *mother's brother*; Chum., -ta; Sal., ta' (*father's younger brother*); Pomo, c, tsu-ts-e.

Washo, ca'-ca, *mother's sister*, Dieg., ini-si-l (*mother's older sister*); Moh., -aḡi- (*mother's older sister*); Pomo, c, cū-ts (*mother's older sister*), E, cex (*mother's younger sister*); Ach., tsimam.

Washo, -euci, *father's brother*; Dieg., in-uwis (*father's older brother*); possibly Chum., -nūc.

Washo, -ayuk, *parent-in-law*; Ach., w-ahak-ui (*father-in-law*); Ess., isikis (for isik-its?), (*mother-in-law*); perhaps also Kar. fiku-wan (*father-in-law*); Chim., teu-maku (*father-in-law*).

Washo, -uladut, *man's brother-in-law*; Kar., eri; possibly also Ach., malis; Moh., -amily-.

Washo, tamomo, *woman*; Sha., daritei; Pomo, E, da; Ess., tanote, tanutek.

Washo, pissau, *ear*; Ach., eicat; Ats., asmak; Sha., isak; Chim., h-isam.

Washo, wiki, wigi, *eye*; possibly cognate with Kar., yup; Sha., oi; Ach., a'sa; Chim., -uso; Pomo, ui; Yana, teu; Dieg., iyu; Moh., iḡo.

Washo, haña, *mouth*; Pomo, ha, habo; Chim., -awa; Sha., au; Ach., aph; Ats., ap'bo; Dieg., a; Chum., ök.

Washo, -iyek, *tooth*; Dieg., ayau; Moh., iḡo. Chim. -utsu, Sha. etsau, Ach. its'a, Yana ki-ts'au, Chum. sa', may or may not be cognate.

Washo, ts'ats'a, *chin*; Yana, djawatts'i; Sha., tsawak; Ach., qawa; Chim., tsuna; Chum., atsüs (*beard*).

Washo, -ibu, *neck*; Ach., wap'di; Ats., op'ki; Chim., -iki; Kar., iskun.

Washo, tuli'-tsek, *finger* (tuli-pi, *finger nail*); Pomo, tana, a'tan (*hand*); Chim., -itean-ka; Yana, dal-la (*hand*). The -pi perhaps recurs in Kar. ipxi, *nail*.

Washo, lats'a, *calf of leg*; Ach., lu-luts; Ats., bu-luts; Sha., po-nots.

Washo, moko, *knee*; Pomo, sw, moko; Chim., -itxani-maxa; Dieg., mexatun.

Washo, tsi-gu-guc, *belly*; Pomo, koi, woxa, xo, uka.

Washo, -ibis, *vagina*; Dieg., -epcat; Moh., -ispanya.

Washo, dip, *navel*; Chim., -onapu; Ats., tsup'dis; Sha., edau.

Washo, apul, *tail*; Ach., ipi; Ats., iwi; Sha., ihi-wa.

Washo, -añal, *house*, may contain a suffix -l. If so, the stem is to be reckoned cognate with Chim., awa; Ess., iwa-na; Yana, wawi; Yahi, wowi; Dieg., awa; Moh., ava; Sha., amma; Sal., -am; Chum., ap; Ach., apule.

Washo, t-a'wi, *knife*; Chum., owa, uwu.

Washo, ma'losañ, *star*; Chim., munu; Pomò., c, kaa-mul, s, ka-mhun, sw, ka-mots; Ess., amutas; Moh., hamuse.

Washo, hospi, *grass*; Ats., qussidr; Sha., xatsid.

Washo, tehe, *snow*; Ats., iti; Sha., ti.

Washo, weskim'a, *wind*; Sha., aska.

Washo, tsakopi, *mud*; Sha., tsik.

Washo, k'ewe, *coyote*; Sha., kw'atuk; Chum., ala-xüwül.

Washo, palolo, *butterfly*; Ach., walwali; Ats., palala.

Washo, tsukumang, *spider*; Ach., tsaxa; Sha., kusi-taki.

Washo, tsotki, *blackbird*; Ach., tsukxa; Ats., tsokha; Sha., duk'i.

Washo, t'yeli, *small*, if t'- is part of the stem, may connect with Kar. tunu-eite, Yana t'ini.

Washo lak'a, *one*, is difficult to connect with Chum. paka, Ess. pek, Yana bai-, on account of the difference in initial, and yet does not seem wholly beyond the bounds of possibility.

Washo, heske-ñ, *two*; Chum., iskom, iskomo. It is difficult to prove, but also to disbelieve, that these forms are connected with Sha. xokwa, hoka, Ach. hak', Ats. hoki, Kar. axak, Chim. xok'u, Yana u'-, uh-, Pomo ko, xote, ako, xos, Ess. xulax, Sal. hakie, kakec, kakeu, Dieg., xawok, Moh. havik.

Washo, helmi-ñ, *three*, is another puzzling form. For the initial element he- as in *two*, there is parallel in Sha. xa-tski, Chim. xo-tai, Pomo ɛ xo-mka, SE xo-xat, Ess. xu-lep, Moh. ha-mok; for the -l- in Yana bul-, Sal. lapai; for the -m- in Chum. masöx, Moh. hamok, possibly in Pomo ɛ xomka.

Washo, tubaldi-ñ, *five*; Yana, djiman-; Chim., p'un-teibum (*six*), qâqi-epom (*seven*).

Washo, emlu, *eat*; Kar., av; Ach., -am-; Chim., ma, ama; Yana, mo; Pomo, x, NE, maa-; Ess., am; Sal., amo'.

Washo, bemu-kul, *chew*; Chim., -kxol- (*dent*); Yana, -gal (*bite piece out of*).

Washo, ge-gel, *sit*; Kar., kini, kiri (*sit, live, be*); Yana, -k'un'a; Yahi, -k'ola (*stay, dwell, sit*); Pomo, ɛ, ga (*sit*).

Washo, mac, *lie*; Pomo, miti, mti, mer, etc.; Yana, murul-.

Washo, piti, piwe, *fall*; Chim., man; Pomo, ɛ, ban (*throw, put*); Yana, ban-di- (*fall, bound*).

Washo, bal, *shoot*; Pomo, ɛ, bati; Chum., wôl.

Washo, yuli, *kill, dead*; Pomo, ɛ, duli, duť (*kill one*), lia (*die, pl.*).

Washo, bekel, *cut up*; Pomo, ɛ, bee (*cut off*).

Washo, -am, awam, *to* (on verbs); Pomo, ɛ, -n (on nouns); Yana, -an- (*arriving at, on verbs*).

Washo, -k (in -u-k, -bu-k, *towards the speaker*, contrast -u-e, -bu-e, *away from the speaker*); Chim., -k (in wa-k, *come*, et. wa, wa-m, *go*); Yana, -ki, (*hither, on verbs*).

Washo, -hat, -ahat, *through* (on verbs); Karok, -harav; perhaps cognate with Chim., -usam; Pomo, ca-.

Washo, de-, *with the hand*; Chim., tu-; Ach., dza-; Ats., to-; Pomo, du-, da-.

Washo, ñi-, *with the head*; Chim., me-; Pomo, ba-.

Washo, -u, *plural* (in pronoun and numeral); Chim., -owa, *dual* (in pronoun); Yana, -u-wi, *dual* (in noun); Chum., -u, *dual* (in numeral *four*, chum-u).

Washo, -lu, *instrumental case suffix*; Ess., -nu.

Washo, d- (or t-), prefix of initially vocalic nouns in the absolute form, possibly also merged in some of the possessive prefixes, has already been mentioned as corresponding to Salinan t- and San Luis Obispo Chumash t-. Dr. Sapir⁷³ connects the two latter with Kar. ta, proclitic to verbs; and with several demonstratives, as Yana da, -dai, adai-ri; Pomo te-ya; Chum. i-te, tuyu. New River Shasta has ki- prefixed to most of its nouns; and Santa Barbara Chumash uses a proclitic article ma very abundantly.⁷⁴ These two elements are of course not cognate to Washo d-. But they are demonstrative particles that are frequently and closely joined to nouns, and thus serve as further examples of a wide-spread Hokan structural inclination.

⁷³ Present series, XIII, 3, 1917.

⁷⁴ Chontal l- on nouns is another parallel.

It is tempting to set up a derivation of Washo *ñ* from *m* from original Hokan *p* or *w*. The forms for *mouth, house, with the head* suggest such a shift.

Dr. Sapir's Data on Washo and Hokan

The following evidence in support of the view that Washo is a Hokan language was compiled by Dr. Sapir. On learning that we had recently gone over the same ground he more than generously insisted on putting his data at our disposal. His list is considerably larger than ours, and a number of forms are analyzed farther. It may perhaps seem that a combination of the two series would have avoided duplication. But the distinctness of the lists fixes responsibility and method, and reveals the degree to which comparisons made independently corroborate or fail to corroborate. A full half of our parallels, and more than a quarter of Dr. Sapir's, coincide.

Stems

Washo, *d-āca, urine* (demon. *aca, to urinate*); Chum., *oxeol*.

Washo, *-ādu, hand, de-, with the hand*; Chim., *tu-, with the hand*; Pomo, *du-, da-, with the hand*.

Washo, *d-a'hil, leg*; Chum., *ū'l* (S. Buen., *öl*).

Washo, *ahu, to stand* (plur.); Chim., *-hoa-, -hâ-*.

Washo, *aliñ, to lick up* (<**apli-ñ, tongue?*); see Yana-Hokan no. 16;⁷⁵ Hokan prototype **ipali*.

Washo, *ama, paternal grandmother, woman's son's child*; Yana, *'amāwi*; Sha., *amo*; Ach., *amun*; Chim., *himo-lla(i)*; Pomo, *ma*; Chum., *(ma-k)-ama, (ma-k-mama)*; Sal., *ama'*; Moh., *n-amau-k, father's mother*.

Washo, *d-aña-l, house* (<**-ama-*), denom. *añal, to live*; Chum. (S. Ynez), *ma'm* (S. Ynez, Barb., Buen., *ap*); Sal., *ṭ-am*; Sha., *amma*.

Washo, *d-ayuc, hair*; Chum., *ōc, fur*.

Washo, *bapa, paternal grandfather, man's son's child*; Pomo, *N, amī-ba, C, ba-tse, S, a-ba-tsen, SE, im-ba-ts*; Pomo, *C, ba-ts, son's son, tōme-bats-ak, son's daughter*; Moh., *n-apau-k, father's father*.

Washo, *bal-i, to shoot, kill*; Pomo, *bati, to shoot*; Chim., *pot, to poke*; Yana, *-balla-, to knock down*.

Washo, *basa, to skin, flay*; Pomo, *bee, to cut off*; Chim., *-bis-, to split*.

Washo, *bee, to throw*; Kar., *-pas-*.

Washo, *-peyu, younger brother*; Chum., *-pèpe, elder brother*.

Washo, *-ca'ca, mother's sister*; Pomo, *N, amī-sū, C, cūts, E, cex-a, S, a-cū-tsen, sw, cū-tsen*; Moh., *n-aḍi-k, mother's older sister*.

Washo, *cū, breast*; Chum., *usūi, chest, heart*; Chim., *h-usi, breast*.

Washo, *cum, to throw*; Chim., *-su-, -sux-*.

Washo, *-ta, mother's brother*; Chum., *-tata*; Ach., *titau-ui, sister's child*.

Washo, *dalik, to strike*; Pomo, *duli, dut-, to kill* (sing. obj.); Yana, *N, dōnit-, to whip, beat*.

⁷⁵ This series, XIII, 5, 1917.

Washo, *damal*, to hear (i.e., d-am-al, from *asmal, *ear*?); Yana, N, mal'gu, *ear*, c, malgu, s, man'gu; Ats., asmak; Pomo, cima; Moh., 'amalya; Dieg., 'Emal; Chon., iemats.

Washo, *delem*, *gopher*; Ess., tanani.

Washo, -elel, *maternal grandfather, man's daughter's child*; Chum., -nène, *maternal grandparents*.

Washo, d-emli, *heart* (*amati); Pomo, NE, matee.

Washo, emlu, *to eat*; Yana, mô-; Kar., av (*from* *am); Ach., -am-; Ats., -ammi-; Chim., -ma-, -ama-; Pomo, N, maamaa; Ess., am; Chum. (S. Buen.) umu; Sal., amo, amma; Moh., mam; Tonto, ma; Cocopa, ahma.

Washo, -euei, *father's brother*; Chum., k-â-nûc.

Washo, kâgi, *crow*; Yana, gâgi.

Washo, gegel, *to sit* (sing.); Pomo, ga.

Washo, gip, *to lift, raise*; Pomo, ki; Ess., akix, akxi, *to get up*.

Washo, -gu, *maternal grandmother, woman's daughter's child*; Ach., aku-n, *mother's father*; Kar., gûit, *mother's father* (gûit, *mother's mother*); Pomo, N, ami-ka, c, ka-tse, E, g'a-tsa, s, a-ka-tsen, SW, ka-tsen, SE, imû-xa.

Washo, tsi-gugue, *belly*; Chum., akeuu.

Washo, -kum, *self*; Chum., kôkeii.

Washo, -haña, *mouth*; Pomo, N, c, ha, s, sw, aha, NE, ha-mô; Moh., 'iya; Dieg., 'â; Kil., ahha-a; Cochimi, jaa.

Washo, hawa, *four*; Ess., xamax-; Chim., qûigu; Tonto, hôba; Wal., hoba; Cochimi, hopa; Yav., hopa; S. Cat., hopa.

Washo, helmi-ñ, *three*; Chim., xodai; Sha., xatski; Pomo, E, xômka, SE, xôxat, NE, kûte'aka; Ess., xulep; Sal., lapai, ilûbahi; Moh., hamok; Seri, ka-xpam, kapxa; Chon., afan.

Washo, heske, *two*; Yana, s, ux-; Kar., axak; Shas., xokwa; Ach., hak'; Ats., hoki; Chim., xok'u, qâqu; Pomo, N, kô; c, sw, ko; s, akô; E, xôte; SE, xôs; Ess., xulax; Sal., hakiç, kakeç; Moh., havik; Coc., howôk; Kil., hhuak; Dieg., xawok; Seri, ka-xkum; Chon., oke.

Washo, -hu, *child, small*: mêhu, *boy*, caulam-hu, *girl* (<*xu); Ess., oxus-k, ukûs, *small, infant*; Tonto, kotye, *small*; Chum. (S. Cruz Id.), kutco, *child*; Kar., âkhe-ite; Pomo, c, kûts E, kûte, sw, kawî, SE, kûtsin, *small*; N, kawî, c, -kû, kû, E, kawî, kûs, *infant, boy, girl*.

Washo, huc, *to blow*; Chim., -hus-, -xuc-; Sal., xot'.

Washo, d-îbe, *sun, moon, month, èbe, day*; Moh., 'ipily-k, *hot, day*; Dieg., 'upit, *hot*; Chon., epal, *hot*.

Washo, ibi, *to come*; Pomo, pibak.

Washo, d-îbu, *neck*; Wal., ipuk; Dieg., ipuk; H'taâm, epok.

Washo, d-iceu, *gall*; Chim., h-uei, *liver*.

Washo, igelu, *to run* (plur.); Poma, gadi.

Washo, d-ime, *water, ime, to drink*; Ess., imi-la, *sea*.

Washo, is, *to take*; Ess., ês-la, *bring!*; Kar., tu-ês-ep, *he took*.

Washo, -isa, *older sister*; Ess., itei, *sister*; Sha., ateu, *older sister*.

Washo, iw, eu, *to eat* (trans.); Pomo, wa (with pl. obj.).

Washo, iye, *to walk, go*; Ess., iyu, *to come*; Sal., ia, ya, *to go*.

Washo, -iyek, *tooth*; Moh., 'îdô; Dieg., Eyau; Pomo, E, yaô'.

Washo, -koi, *father*; Chum. (S. Bar., S. Yn.), qoqo; Kar., kôhî-mâtekô, kûa-kûm, *dead father*; Moh., n-akut-k, *father of a male*.

Washo, -la, *mother* (*na or *ta); Ach., m-ani; Yana, nina, s, ga-n-na; Pomo, E, nîxa; Sha., ani; or Kar., îta; Chum. (S. Yn.), tuq; Yum., *tai.

Washo, lal-u, *to crush*; Chim., -lot-; Pomo, lat.

Washo, lel-b, *to roll*; Chim., nolle, *round*.

Washo, le'lem, *midnight*; Moh., tinyam, *night*; Dieg., tinyam.

Washo, luwe, *to sit* (plur.); Pomo, napo.

Washo, -māca, *man's brother's child*; Chim., maso-la-i, *daughter*, mica-ku-i, *nephew*.

Washo, -māgu, *man's sister's child*; Chim., mago-la-i, *uncle*, teu-maku, *father-in-law*, teu-mako-sa, *mother-in-law*.

Washo, malolo, *parents*; Pomo, N, a-mee, C, me-de, S, a-men, SW, a-pen, SE, i-mek, NE, -mee.

Washo, ma'losañ, *star* (*amu'tas); Ess., amutatas (*plur.*); Moh.; hamuse; Dieg., kwily-mesap.

Washo, mlaya, *wife*; Pomo, N, C, mata, *woman*, SW, imata; Yana, mari'mi.

Washo, mēhu, *boy*, caula-mhu, *girl*; Yana, 'amai-ts'gi, *children*; Moh., h-uma-i-ch, *man's son*.

Washo, mōko, *knee*; Chim., h-itxani-maxa; Pomo, SW, mōko; Dieg., mexe-tunn.

Washo, ta-mōmo, *woman*; Seri, k-mam, éke-mam (cf. k-tam, éke-tam, *man*).

Washo, mūc, *to run*; Chim., -mum-.

Washo, ūauwa, *earth* (*mawa); Kar., ma-ruk, *earthward*; Chim., ama; Pomo, N, C, ma, S, amma, SW, NE, ama; Ess., maksa-la, *matra*; Moh., amaṭa; Dieg., amat; Seri, amt; Chon., amats.

Washo, dal-pōpoi, *white*; Chum. (S. Cruz), pupu; Seri, ko-'po; Chon., fuka; cf. Chum. (S. Buen.), poi, *snow*; Chim., hi-pūi.

Washo, ts'ats'a, *chin*; Sha., tsawak; Ach., tsoiwas; Yana, djawat-ts'i; Chim., -teni, h-itan-pu, *arm*; Pomo, N, C, S, tana, SE, a'tan.

Washo, ts'ats'a, *chin*; Sha., tsawak; Ach., tsoiwas; Yana, djawat-tsi; Chim., tsuna.

Washo, tuli-'tsek, *finger*; Pomo, N, tana-tsū, C, tana,see, E, bi'ya-tsūkai, S, ō'tōma-se; Sha., ètsa, *five*.

Washo, -ulādut, *man's brother-in-law*; Kar., eri, cē.

Washo, ulec, *to carry*; Pomo, la.

Washo, yo'wi, *thigh*; Dieg., yuwil.

Pronouns

Washo, I-, *I, my*; lē, *I*; la-, *he—me*; Chim., nō-ut, *I*; Kar., na, nī-, *I*; na-, *me*; nani-, *my*; Ess., enī, *ene, I*; nie-, *my*; Dieg., n'ya, *I*; Chum., noi, noo, no, *I*.

Washo, di-, *my* (=demonstr. d- + i-); di-, *I—him*; mi-, *I—thee* (=m- + i-; cf. m-, *thou*, ma-, *he—thee*); (that -i- is not inorganic is shown by terms of relationship like di-isa, *my elder sister*); Chim., -i, *my*. See Yana-Hokan no. 187.

Washo, m-, um-, *thou, thy*; mi-, *I—thee*; ma-, *he—me*; see Yana-Hokan no. 190.

Washo, —, *his* (añal, *his house*, cf. d-añal, *house*); —, *he, he—him*; Chim. h-, *his, he*; Pomo, ha-; Moh., '—.

Washo, ge-, *imperative*, ga-, . . . *him!*; Sal., k-, *imperative plural*; Chim., q-, qo-, qe-, *ye*.

Washo, d-, *nom. prefix*; ida, *thereupon*; ic-da, *then, and then*; de-, da-, *his* (before consonants). See also dī, *there*. See Yana-Hokan no. 2.

Washo, dī, *there* (distant); dī-di, *that* (distant); Yana, adai-(ri-), -dai-, *that*.

Washo, hā, *there* (near you); hā-di, *that* (near you); Pomo, he, hee, *the, this*; Sal., he, *the, that*; Chum. (S. Bar.), he, *this*; Yana, ai-ye('e), *that*.

Washo, wā, *here*; wi-di, *this*; Yana, wairu, *now*.

Washo, dī, in widi, *this*; hādi, *that*; dīdi, *that* (distant); ku-di-ña, *who*; Yana, adai-ri, *that*.

Washo, *ku*-, *interrogative stem*, in *kudiña*, *who*; *kuñate*, *what*; *kuña*, *where*; Ess., *ki*-(*ni*), *who*; *ke*-, *where*; Chim., *qo-mas*, *ko-mas*, *who*; *qâ-tei*, *what*; *qâ-suk-matei*, *when*; *qô-malu*, *qo-si*, *where*; *ko-sidaji*, *why*; Pomo, *ki-a*, *who*; Chum. (S. Yn.), *ku-ne*, *who*; Sal., *ake*, *who*, *which*, *where*.

Prefixes

Washo, *dal*-, *color prefix*; Yana, *da*-, *color verb stem*.

Washo, *de*-, *with the hand*; see *âdu*, *hand*.

Washo, *ñi*-, *with the head*; Chim., *me*-, *with the head*.

Washo, *nga*-, *with a long object*; Pomo, *ga*-, *with an edge drawn lengthways*.

Noun suffixes

Washo, *-ci*, *dual*; *lè-ci*, *we two (excl.)*; *lèci-ci*, *we two (incl.)*; *mi-ci*, *ye two*; *heskel-ci*, *two persons*; *di* . . . *ci*, *of us two*; *-ki-c*, *noun plural*; Kar., *-c*, *noun plural*; Ess., *le-c*, *we*; *nome-te*, *ye*; *la-te*, *they*; Chum., *ki-s*, *we two*; *pi-s*, *ye two*; *si-s*-, *they two*; *ki-c-ku*, *we two*; *pi-c-ku*, *ye two*.

Washo, *-k*, *emphatic pronominal*, as in *mi-k*, *you yourself*; Pomo, *è-k*, *he*; *hè-k*, *they*.

Washo, *-kic*, *noun plural*; Yana, *-ts'gi*, *dim. plur.*; *-gi*, *noun suff.*

Washo, *-l*, *noun suffix*, as in *d-aña-l*, *house*; *peguhul*, *eyebrow*; *yañil*, *woman's sister-in-law*; Chim., *-r*, *-l*; Dieg., *-ly*; Pomo, *-l*; Ess., *la-l*, *he*.

Washo, *-tsi*, in *behè-tsi-ñ*, *small*; Yana, *-ts'i*, *collective noun suffix referring to small objects*; Kar., *-ite*, *diminutive noun suffix*; Pomo, *-ts*, *-tee*, *-tsen*, *in relationship terms expressing affection*; Chum., *-ite*-, *-its*-, in *ma-k-ite-tun*, *my son*.

Washo, *-u*, *plur.* in *lèu*, *we*; *miu*, *ye*; *helmiu*, *people*; Yana, *-wi*, *noun plural*; Sha., *-yawer*, *pronominal plural*; Ats., *-wir*; Sal., *hi-wat*, *he-wat*, *plur. of he*, *that*; cf., Chum., *-wun*, in *qòlò-wun*, *those*.

Postpositions

Washo, *-a*, *case suffix*, *in*, *to*; Pomo, *-a*, *at*; Yana, *ai-dj-a*, *there*.

Washo, *-aca*, *in*, *within*; Kar., *-k-cu*.

Washo, *-haka*, *in company with*; Kar., *-xaka-n*.

Washo, *-iwi*, *on*; Kar., *-ava-kam*.

Washo, *-lu*, *instrumental*; Ess., *-ma-nu*, *with (comitative)*, *-nu*, *with (instrumental)*.

Washo, *-uwe*, *from*; Pomo, *-awa*.

Local suffixes

Washo, *-uk*, *-buk*, *verbal suffix*, *toward the speaker* (cf. *-ue*, *-bue*, *from speaker*); Yana, *-k'i*-, *hither*; Chim., *-wak*, *-watok*, *to come* (cf. *-owa*-, *-wam*-, *to go*).

Washo, *-gi-liwe*, *motion downward* (cf. *-giti*, *upward*); Kar., *-uni*, *down*; Yana, *-'uldi*-, *down from a height*.

Washo, *-ti*, *down*, in *piti*, *heti*, *diti*, *to fall*; Yana, *-di*-, *-ri*-, *down*; *-du*-, *-ru*-, *down*; Ach., *-danu*-, *Chim.*, *-dam*-,

Other verb suffixes

Washo, *-a*, *indefinite past, aorist*; Pomo, *-a*, *present, immediate past*.

Washo, *-aca*, *future, desiderative*; Kar., *-hec*.

Washo, *-ce*, *let us . . . !*; Kar., *-c*, *imperative*.

Washo, -du-we, du-hai, *conative*; Yana, -du-, -ru-, *to go in order to*.

Washo, -i, *present*; Pomo, -e, -k-i, *predicative adjective*.

Washo, -lè-ki, *recent preterit completed*; -ai-ki, *more distant preterit completed*; Chim., -ak, *past, completed*; Pomo, -ki-ma, *usitative past, continuative present*; -n-ki, *putative*; -ki-le, *past*.

Washo, -ña-wa, *more, besides*; Yana, -ma-, *with, also*.

With the probable addition of Washo, then, the Hokan family has grown to comprise Karok, Chimariko, Shastan, Pomo, Yana, Washo, Esselen, Salinan, Chumash, and Yuman, or ten Californian stocks once reckoned independent; besides Seri and Tequistlatecan in Mexico.

“RITWAN”

Ritwan is the family formed by the union of Yurok and Wiyot. Considerable similarity of the structure of these two languages had long been noted.⁷⁶ In their first communication on relationship,⁷⁷ the writers set up the new group; in the second,⁷⁸ they submitted a list of stems in support of the contention.

The same number of the journal that included the latter communication contained also a paper by Dr. Sapir,⁷⁹ supporting at some length the view that both Yurok and Wiyot were members of the great Algonkin family of the northeastern portions of the continent. This position was promptly assailed by Dr. T. H. Michelson,⁸⁰ and a reply by Dr. Sapir followed.⁸¹

One of the present writers happens to have collected about all the material extant in print on both Yurok and Wiyot. He has also had the fortune of some first hand acquaintance with Arapaho, a language universally recognized as Algonkin. He has not the slightest hesitation in subscribing to Dr. Sapir's interpretation of Yurok and Wiyot. Besides a considerable list of similar stems, Dr. Sapir has established at least some sound shifts, as between Algonkin *s* and Yurok-Wiyot *l*; and the cut of both this tongue and Yurok seems very close to that of Algonkin. The manner in which the verb is built up, for instance, is as of exactness attained in the Indo-Germanic field. Forgetful that characteristically Algonkin in Yurok as in Chippewa.

Dr. Michelson's objections appear to be of two kinds: first, that

⁷⁶ Am. Anthr. n. s., v, 18, 1903.

⁷⁷ Science, n. s., xxxvii, 225, 1913.

⁷⁸ Am. Anthr., n. s., xv, 653, 1913.

⁷⁹ *Ibid.*, xv., 617-646, 1913.

⁸⁰ *Ibid.*, xvi, 361-367, 1914; xvii, 194-198, 1915.

⁸¹ *Ibid.*, xvii, 188-194, 1915.

some of Dr. Sapir's parallelisms of stems seem to be unsound; and second, that he has left a great many apparent differences between Ritwan and Algonkin unexplained. Both these contentions are negative; and what counts in a question such as this is not the thousand points that can not yet be construed as evidence, but the hundred, or failing those the ten, that can. The available data on Yurok and Wiyot are of the slightest; their analysis therefore is of necessity also slender. Dr. Michelson's attitude is that of the professional Algonkinist fired with an ambition to bring his branch of study to the level Algonkin is of necessity today where Indo-Germanic philology was a hundred and fifty years ago, and that its material is perhaps one per cent as abundant, he seems to insist that no judgment can be considered that is not substantiated by evidence of the quantity, and of the degree of accuracy, that Brugmann would demand. Such an attitude, if persisted in, cannot but result in complete barrenness of effort for a long time to come. American linguistics is a new and an undeveloped field, and pioneer conditions must continue to prevail in it for some time longer. To throw out all evidence that does not attain to an arbitrary standard of fineness is sterile as well as unreasonable.

Considering the data at his disposal, Dr. Sapir's treatment of the kinship of Yurok and Wiyot is certainly conducted on the one hand with insight, and on the other with due philological caution and critical safeguards. The authors therefore accept his findings in full confidence, and merge their tentative Ritwan family in the Algonkin. The future progress of the elucidation of Yurok and Wiyot depends first of all on the presentation of fuller and more accurate information on these languages; secondly on the analysis of such information in the light of Algonkin generally.

ATHABASCAN

This great family is represented in California by a series of peoples, in the northwestern region of the state, speaking at least three or four groups of dialects. These dialects seem not to have been influenced in the least, either lexically or structurally, by any of the neighboring non-Athabascan tongues. The California Athabascans are in geographical contact with Penutian, Hokan, Algonkin, and Yukian languages; or, according to the old reckoning, with eight of the twenty-one stocks of the state: Wiyot, Yurok, Karok, Shasta, Chimariko, Wintun, Pomo, Yuki. Yet they possess no loan words

from any of these, and appear to have given none. In table 1, in the Introduction, they are credited with a far smaller number of resemblances than any other stock, namely, two; and these are both instances of apparently fortuitous similarity of the same Athabascan stem, *xoñ*, *fire*, which was equated with Shoshonean *ku-* and Pomo *ho*, *oho*. Eliminating this instance, as it almost certainly should be, Athabascan is left with a negative record. In short, the other languages and families of California have occasionally borrowed, or appeared to borrow, a stem from one another: Athabascan has reacted toward all of them like a jet of oil shot into water.

This uniqueness is intelligible on two grounds only. Either the Athabascans are too recent in the region to have taken over alien words, or there is something about their speech that prevents such purloining. The former alternative is disproved by the complete cultural assimilation of all the Athabascan groups in the state. The Kato observe Pomo customs, the Wailaki those of the Yuki, the Hupa those of the Yurok, to the degree of virtual identity. Such thorough acculturation requires at least a number of generations. The only interpretation that remains, accordingly, is that there is something in the character of Athabascan speech that causes it to cling with conservatism to its existing forms, and show a tenacious resistance to foreign elements and ideas. This inference is corroborated by the comparatively slight differentiation undergone by the Athabascan languages in regions so far separated as Alaska, Oregon and California, and New Mexico.

SHOSHONEAN

As compared with Athabascan, Shoshonean has been far more on a basis of give-and-take with its neighbors. It is also in contiguity to eight groups hitherto recognized as distinct stocks—Yuman, Chumash, Yokuts, Miwok, Maidu, Washo, Shastan, Lutuami; but its line of contact with them is immensely longer. For some reason borrowing appears to have gone on chiefly across the southern portions of this line.

Luiseño *suñ-al*, *woman*; Yuman *siny*, *thy-*.

Gabrielino, Tübatulabal, Shikaviyam, Mono *cok*, *euki*, *cogont*, *tobacco*; Yokuts *cokon*.

Tübatulabal *soxkoi*, *elk*; Yokuts *soxgoi*.

Tübatulabal *wits*, *condor*; Yokuts *wits*, *wite*.

Tübatulabal *gutsu-*, *small*; Wintun, Miwok, Costanoan *kuteu*, *kuei*, etc., Yokuts *godli*.

Gabrielino, Serrano *puku*, *haukup*, *one*; Chumash *paka*; Esselen *pek*.

Tübatulabal and Southern California Shoshonean *sun*, *hun*, *xun*, *heart*; Maidu *hun*, *honi*; Yokuts *honhon*.

Southern California Shoshonean dialects, *atax*, *taxat*, *person*; Ventura Chumash *ataxat*.

Mono *nana*, *man*; Yokuts *nono*; Miwok *naña*.

Luiseño *akwali-mai*, *baby*; Yuman Diegueño *ekwale*.

The words in the first half of this list seem to have come into Shoshonean, the remainder to have come out of it. It is easy to imagine that a rather simple-structured language, such as Shoshonean is, should have been more inclined to borrow than a synthesizing and descriptive tongue like Athabascan. But it is rather surprising that families as different as Penutian and Hokan should have been about equally ready to adopt Shoshonean words.

YUKIAN

In table 2, Yukian is credited with a rather large number of apparent similarities with an adjacent Hokan language: Pomo; and with a Penutian tongue that is also adjacent: Wintun. In part this high figure is due to the family being divided into two branches which are geographically discrete and linguistically quite divergent. The northern branch consists of Yuki and its variants Huchnom and Coast Yuki. The southern comprises Wappo only. The Wappo language was spoken by a small number of people in a confined area.

Table 1 gives to the Yukian family thirty-three stems more or less similar to stems of other Californian stocks. These classify as follows:

Common to Yuki and alien stocks	14
Common to Wappo and alien stocks	15
Common to Yuki and Wappo and alien stocks	4

It is therefore clear that so far as the resemblances may be real, they are in the main due not to any ancient connection, genetic or inducted, between the Yukian family as a whole and any other family or families, but to separate connections of each of the two Yukian branches with other stocks. Such connections can hardly have been anything but borrowings or loanings carried on independently by the two Yukian divisions since their separation.

The same result appears when the figures are analyzed more in detail. The Yuki were in contact with the Hokan Pomo, the Penutian Wintun, and Athabascans. The latter must be discounted when borrowing is in question. A high chain of mountains separated the Yuki from the Wintun. On the basis of the resemblances being due

to loans, Hokan influence should therefore be at least as strong as Penutian in Yuki. It is. Stems common to Yuki and Hokan number ten; to Yuki and Penutian, ten.

The Wappo were jammed between the Pomo and Wintun, but without geographical barrier toward the latter. Besides, they were adjoined by two other Penutian groups: the Lake Miwok on the northeast, the Coast Miwok on the southwest. Wappo should therefore share more stems with Penutian than with Hokan, on the loan hypothesis. The figures are: Wappo and Penutian, thirteen; Wappo and Hokan, eight.

Again, the Yukian resemblances of table 1 diminish in number, in both Hokan and Penutian, according to the remoteness of the individual languages. Thus:

<i>Hokan</i>	
With Pomo (adjacent)	14
With Chimariko	6
With Shasta	5
<i>Penutian</i>	
With Wintun (adjacent)	14
With Miwok (adjacent to Wappo)	12
With Maidu	12
With Costanoan	9
With Yokuts	8

Borrowing is accordingly strongly indicated as cause of the resemblances between Yukian and Hokan and Penutian, and the probability of a genetic connection between the stock and either of these two families is correspondingly reduced.

The figures in tables 1 and 2 are however based on preliminary comparisons which may indiscriminately cover genuine similarities traceable to genetic unity, genuine similarities due to borrowing, and false or accidental similarities. The Yukian data have therefore been examined afresh in the light of the recognition of the Hokan and Penutian groups as families; with the following results:

Obvious Borrowings Between Yukian and Penutian

- Wappo, me, Yuki, mi'pat, *hand*; Md, ma.
 Wappo, pe, *foot*; Md, pai.
 Yuki, k'ip, Wappo, k'ita, *belly*; W, se, ki.
 Wappo, yomto, "*shaman*," *ceremonial initiate*; W, s, yomta; Md, yomi, Mw, L, yomta. Also borrowed by Pomo, NE, yomta.
 Yuki, kiu, *arrow*; Mw, L, kiuwa.
 Wappo, k'awi, *mortar*; W, c, k'awi, sw, kawi; Mw, L, xawi.
 Wappo, hin, *sun*; Mw, P, co, L, hi.
 Wappo, mei, *water*; W, mem; Md, momi, mom.

Wappo, pipo, *white oak*; Md, s, piki.

Yuki, mil-i, *white oak*; W, sw, mule; Mw, L, mule.

Wappo, haiyu, *dog*; W, SE, haiyu, sw, haiyuk; Mw, co, haiyusa; also Pomo, haiyu.

Wappo, kecu, *meat, deer*; Md, s, kösö, *meat*.

Wappo, kutiya, *small*; W, kuta, kutei, kuci, kueun; Mw, L, kucei; C, J, kuteu-, CL, kueu-. Also Pomo, c, E, SE, kute-.

Wappo, uki, *drink*; Y, ukun; Mw, usu; C, M, ukis.

Obvious Borrowings Between Yukian and Hokan

Wappo, pice, *horn*; Pomo, pice, bice, *deer*.

Yuki, k'ol, *mortar*; Pomo, s, sw, kolo.

Yuki, p'otil, *ash*; Pomo, NE, pootil.

Possible Radical Resemblances Between Yukian and Penutian

Wappo, i-naa, *mother*; W, sw, nen-teu; Md, ne; Mw, co, L, unu; C, ana. There is also a Hokan stem for *mother* in -n.⁸²

Yuki, nan, *head*; W, SE, ana; Md, N, ono; Mw, c, N, hana. Hokan lax, naxa, innux (Shastan) and cina, ena, tina (Pomo) is less similar.

Yuki, Wappo, t'ol, *hair*; W, sw, dul (*head*); Md, s, teul (*head*); Mw, P, tolo (*head*); Y, K, dool, T, toť (*head*).

Yuki, k'it, Wappo, ts'iti, *bone*; Y, te'i; Mw, kuteuteu; C, ʔai, ʔati, teate, etc.

Yuki, eul, *body*; W, s, tun, tul; Md, NE, lulu; Mw, L, hina.

Yuki, pil, *snow*; W, yol, yolo; Mw, kela; C, F, puut.

Yuki, t'ok, Wappo, tcote, *flea*; W, SE, tunkus; Md, tökösi.

Yuki, te'al, Wappo, k'aiel, *white*; W, kaya, Luyuke, te'am, sam, tealoki; Md, NW, edali; Y, djolol, dololi, etc.; C, B, tealka. But cf. Pomo, lake.

Possible Radical Resemblances Between Yukian and Hokan

Yuki, cam, Wappo, tsema, *ear*; Pomo, cima; Chimariko, -isam; Shasta, isak; Atsugewi, asmak.

Yuki, a'e, *blood*; Shasta, axta; Achomawi, axdi; Atsugewi, icuri; Karok, ax; Chumash, axulis; Diegueño, axwat.

Yuki, mit, *sky*; Chimariko, teemu; Achomawi, tsamiki; Esselen, imita; Mohave, ammaya.

Wappo, oma, *earth*, is probably a form of Yuki on, and unconnected with Pomo ma, ama, Chimariko ama, Esselen ma-, Mohave amaťa.

Yuki, uk', *water*; Hokan, aha, asa, aka, as, ha, etc.

Yuki, sa', *eagle*; Pomo, N, c, E, cai; Chumash, slo, tslo; Mohave, aspa; Diegueño, ixpa. But, Md, NW, siti; Mw, L, suiyyu; C, M, sirx.

Yuki, sop, *turtle*; Achomawi, häpits; Chumash, caq; Mohave, kapeta.

Yuki, pa'w-i, Wappo, pawa, *one*; Yana, bai; Esselen, pek; Chumash, paka.

Yukian Similarities to Both Penutian and Hokan

Yuki, aťat, Wappo, a'tet, *person*; Pomo, tea, teate, aťaťai, atea; Y, T, ʔaťi; Mw, co, ʔaiyi-e, L, tai, P, cawe (*man*); C, ʔare-s, teare-s (*man*).

Yuki, mus-p, Wappo, mete, *woman*; Pomo, N, c, mata-, sw, imata; Yana, mari'mi; Y, muk'ela, muk'a-e; C, B, mukur-ma.

Yuki, hul, *eye*, might possibly affiliate with Pomo, ui; Shasta, oi; Chimariko, -usot; Karok, yup; Diegueño, iyu; or with Mw, huntu, sut; Md, hin, hini; C, xin; but neither resemblance seems valid.

⁸² Present series, XIII, 12 (no. 96), 1917.

Yuki, saⁿk, Wappo, sa, *tooth*, is of the same variety: Chimariko, -utsu; Shasta, etsau; Yana, kite'au; Chumash, sa; W, si, ei; Md, tsiki, tsawa; Y, t̥eyi, teli, etc.

No conviction of original unity, in fact scarcely a suspicion to such an effect, can be derived from these data. The most numerous group is one of obvious loan words. The similarities that cannot be laid positively to borrowing are sometimes far from close; are rather few; and are equally divided between Penutian and Hokan. Scarcely one is compelling; and the only possible inference is that they are all fortuitous.

The structure of Yukian is, formally considered, rather surprisingly similar to that of the Penutian languages, as was long since pointed out by one of the writers.⁸³ The only morphological trait of importance that would positively argue against the inclusion of Yukian in the Penutian family, if lexical agreements so demanded, is its free addiction to composition of independent stem words. Relationship must however be based on content as well as form; and serious resemblances of vocabulary being wholly lacking, Yukian must continue to be regarded as unconnected with both Penutian and Hokan. It is the only one of the many local Californian languages that still remains, to the best of our knowledge, an independent family.

⁸³ A. L. Kroeber, "The Yokuts and Yuki Languages." Boas Memorial Volume, pp. 64-79, 1906.

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